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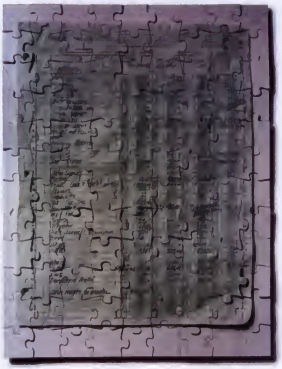

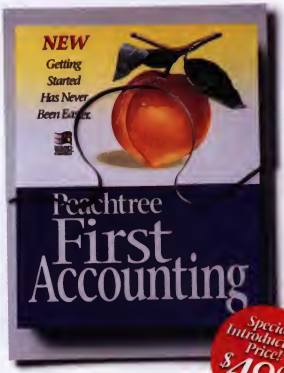

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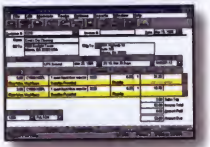

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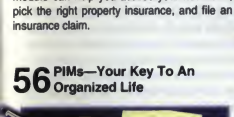

Can't find your address book? Tired of all the Post-It notes stuck to your desk? Always forgetting meetings? We have the answer for you: the Personal Information Manager. These handy software packages will get your life organized without the hassles of a printed planner.

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TECHNOLOGY NEWS

Compiled by Cindy Krushenisky

Timex Clocks More Than Just Time

It seems a number of watch manufacturers are coming up with new uses for that timepiece strapped to your wrist. They've built in night lights, alarms, pagers, and even personal information managers.

Now Timex Corp. and Data Broadcasting Corp. are adding to that list. The two are working on a new device to which they can directly beam all sorts of up-to-date news.

Both companies are designing a wristwatch that, at a glance, would give you sports results, financial information, and news headlines, as they happen in real-time.

In their recent agreement, Data Broadcasting promised to provide its wireless financial and sports data network and an FM receiver module/antenna system that will receive the wireless data signals. Timex then will manufacture and market the watch. The new watches are not expected to be introduced to the consumer market until 1996, tentatively. ●

A New Format For Entertainment

It's not CD-ROM. It's not quite audio CD. It's a new multisession music CD technology often referred to as CD Plus.

Philips Electronics N.V. and Sony Corp. have proposed the basic specifications for a multisession CD that would combine normal audio tracks with additional CD-ROM information. Audio tracks will be recorded in the first session, and additional information will be recorded in the second session.

The combining of the two CD platforms has been touted by some industry experts as a new generation of entertainment products. Officials at Microsoft Corp. seem to think so, anyway. Microsoft has announced its support of the effort and has said a new audio CD format will be supported in the Windows 95 operating system.

Using the new format, computer users can view video clips, photographs, animation, and text along with the music on a Windows 95-compatible PC. That may mean that you could view a music video, album artwork, song lyrics, and liner notes as you listen to the latest releases.

Although Philips and Sony anticipate that the multisession music CD format will be supported by the record industry and Microsoft has made authoring tools to create the CDs available to the record industry, it will be months until the new CDs hit the market. But that shouldn't be a problem. According to a recent announcement, Microsoft won't be releasing Windows 95 until at least August. ●

Giving CD-ROM The Boot

When you boot up your computer, it gets the information it needs to start itself from the hard drive. If there's a problem with some of the information on the hard drive, you may boot your system with a special diskette in your diskette drive. However, you've never been able to boot your computer using the CD-ROM drive.

Until now, that is. Phoenix Technologies and IBM Corp. have developed the Bootable CD-ROM Specification 1.0 that allows CD-ROM drives to be used in place of floppy or hard drives as boot devices in IBM and compatible computers.

Previously, an operating system was loaded on another hard drive and a device driver (software that acts as a go-between for the operating system and hardware devices) was present to provide access to a CD-ROM. But this new specification eliminates that requirement.

What this means is that system manufacturers can offer their computers with a single CD that contains everything needed for system configuration, including the operating system, applications, and programs. If anything should go wrong within the hard drive, one CD-ROM holds all the information to get the system back up and running. The only things that users will need back up to diskette are any new programs or files they buy or create.

So far the acceptance of the bootable CD-ROM specification in new personal computers isn't widespread, although you will be able to find it in some network servers by IBM. ●

Would Zeus Be Proud?

While the 1996 Olympic Summer Games in Atlanta will be a great distance from the original Olympian Games in ancient Greece, the technology used to record the games also will be a far cry from that ever imagined in the 4th and 5th centuries B.C.

To keep athletes, media, and others at the 1996 Olympics in-the-know in Atlanta, IBM is teaming up with HTE Inc., an Orlando, Fla.,-based software company that specializes in applications for local government. The two companies are developing a high-tech, touch-screen computer application called Info'96 to provide event results, news flashes, athlete biographies, weather reports, historical Olympic information, transportation schedules, and more.

The electronic kiosks, connected to IBM AS/400 Advanced Servers, will be located throughout Atlanta, including all Olympic venues. The IBM Olympic sponsorship is planning to move the application to the 1998 Olympic Winter Games in Nagano, Japan and the 2000 Olympic Summer Games in Sydney, Australia.

For those unable to attend the games in person, a new wireless messaging service provided by MobileComm, BellSouth's paging subsidiary, will provide instant Olympic results. MobileComm will send wireless results to its nationwide subscribers with alphanumeric pagers. For example, shortly after an event like swimming has ended, pagers will display a message such as "Matt Biondi wins gold for U.S. in freestyle," allowing subscribers to keep up on all the Olympics action. ●

A National Digital Library

Imagine you have some research to do. You start up your computer and cruise the Information Superhighway until you reach the National Digital Library. Here you can find all sorts of books and documents you would never have access to at your local library. You can page through the digital documents—text, graphics, and all—doing research without ever leaving your home.

Although it may sound a little incredible, it's not too far from a reality. Currently, Library of Congress officials are meeting with directors of other libraries (that are members of the Association of Research Libraries) in order to create a National Digital Library.

The Library of Congress is collaborating with other libraries and major institutions in hopes of forming a coalition that would convert important collections to digital formats accessible by computer. By the year 2000, the coalition hopes to have digitized five million images.

However, the Library of Congress is facing a few obstacles. While a National Digital Library will broaden access to many library collections, it won't replace the needs for the original works. It also won't remedy many library problems, such as space and preservation of older works, and the coalition will need to come up with a way to resolve copyright issues that may arise with electronic dissemination. ●

Keeping America In Hot Water

Despite common conceptions, researchers at the U.S. Commerce Department's National Institute of Standards and Technology (NIST) have found that computers and water do mix, but only when it comes to solar water heating.

They've developed what they believe to be the first solar water heating system that uses photovoltaic (PV) cells in combination with computer technology to capture the sun's energy.

Photovoltaic cells are semiconductor devices that convert the energy in sunlight into electrical energy. The NIST system uses these PV cells on the roof of a house to deliver solar power directly to multiple heating elements in a hot water tank to warm the water.

Regular solar thermal water heaters pump water through pipes up to a rooftop solar collector where it is heated and returned to the storage tank. This can result in freezing or leaking fluid, failure of temperature sensors, and heat losses through piping. In comparison, the NIST system uses a computerized controller that measures the energy and directs it to the element that will maximize the solar energy that strikes the cells.

Researchers received a patent for their new system and expect to have the first NIST system operational early this year. Then they plan to monitor the system's performance for a year. ●

Pink Slips Take On Electronic Hue

When you purchase a new vehicle, in return you get the vehicle and a very vulnerable pink piece of paper that signifies title to the vehicle. However, the days of these pink slips are numbered. Maybe not to consumers, but to the lenders that store most of the titles to the vehicles on the road.

In some circles the pink slip is being replaced by a Paperless Title System that stores vehicle title information electronically.

The idea for electronic titles was first introduced during a pilot program by the California Department of Motor Vehicles in 1989. The program helped streamline title transfers for a department that typically processes more than eight million titles annually.

Since then, more than two dozen auto lenders including banks, credit unions, and finance companies have converted by purchasing paperless title software or by using a service bureau (such as FDI Consulting of Sacramento, Calif.) to process the paperless titles. Other states, such as Washington, Oregon, and Massachusetts also are either considering such pilot programs or already have them in place. ●

Tech Shorts

If you haven't already, chances are good you will run across the name "Pippin" in the near future. This is a new CD-ROM platform derived from the Macintosh operating system and the PowerPC microprocessor by Apple Computer Inc. Apple is licensing the platform out to other vendors to operate all kinds of education and entertainment multimedia titles. Currently, the Japanese company, Bandai Co., is the first licensee. It plans to introduce a multimedia CD-ROM software player that connects to a television set. Called the Power Player, it should be introduced worldwide in late 1995 and is expected to play Pippin-compatible Macintosh multimedia software for about $500....

Apple will no longer be the only manufacturer of computers with the Macintosh operating system. Soon the Apple Macintosh will have its own compatible computers, just as IBM computers have compatible systems that operate with the DOS, Windows NT, or OS/2 operating systems (OS). Late last December, Power Computing Corp. announced it would be the first company to announce a Macintosh-OS licensing agreement and plans for developing systems that run the Macintosh OS. Power Computing plans to begin shipping its first Macintosh OS-compatible systems, based on the Power PC microprocessor, in the spring of 1995....

One way to judge the power of a microprocessor is to check its clock speed, which you can find as the megahertz number next to the microprocessor number. But some overseas organizations are ready to do away with that microprocessor measurement altogether. Advanced RISC Machines Ltd. of Cambridge, England, and the University of Manchester (also in the United Kingdom) are collaborating to develop the industry's first "clockless" asynchronous microprocessor. The two groups are hoping computing without clocks will lead to faster processors that require less power, and therefore, less heat (which sometimes causes overheating problems in some powerful processors). ●

PRODUCT PREVIEWS

Inside The Action

If you're a coach potato trying to kick the habit—beware. Virtual i-O of Seattle, Wash., has developed a new head-mounted device that virtually gets you up off the coach and into the action.

Called the Virtual i-O i-glasses, the devices look like a high-tech visor with headphones and small screens that cover your eyes. When you connect the i-glasses to a television or game player, they create the visual effect of a large virtual screen that appears to float in front of you.

You may have already heard of other virtual-reality glasses that let you watch a virtual television screen suspended in front of you (such as the Virtual Vision Sport by Virtual Vision, 206/882-7878). However, Virtual i-O seems to have placed a twist on its i-glasses. They allow a viewer to watch everything from television and video tapes to computer images and virtual reality games in a three-dimensional setting.

The i-glasses use a head-tracking technology that places the viewer in a 360-degree environment with a 30-degree horizontal field of view. When the viewer moves his or her head, the environment moves with the viewer.

You may be thinking, "this may be really cool in combination with 3-D or virtual reality video games, but television isn't three-dimensional."

True. But Virtual i-O Co-Founder and Senior Vice President Linden Rhoads predicts that during the next year, consumers will be able to see television programming shot in three-dimensions. If so, perhaps the i-glasses may be able to give viewers the perspective of a three-dimensional punch from George Foreman without the worry of a black eye.

Virtual i-O i-glasses are compatible with televisions, VCRs, personal computers, and all major gaming systems including Sega, Nintendo, Atari, and 3-DO. A base unit with only TV and video capabilities will have a list price of $599. A version with head-tracking and PC capabilities will list for $799. For more information, contact Virtual i-O at (206) 382-7410. ●

Jack Of All Trades

It's likely you've already got an on-ramp to the Information Superhighway in your home; all you need is a telephone line. But it's likely you don't have a telephone jack in every room of your house, which can throw a roadblock in your online traveling plans.

If only you could use all those extra electric outlets in your house. Lucky you. It seems someone is thinking on your level.

Recently, Thomson Consumer Electronics Accessories & Components Business (of Deptford, N.J.) began marketing a Wireless Phone Jack System that lets you turn any electrical outlet into a phone jack.

No, the phone receiver won't fry your ear. The system consists of two basic components and uses alternating-current electrical wiring to transmit a telephone signal. A base unit, which is plugged into an outlet and an existing telephone jack, transmits the telephone signal on the electrical wiring. An extension unit then plugs into any electrical outlet and operates as a telephone jack.

Available under both the RCA and GE brand names, the Wireless Phone Jack System is in stores for around $100. For more information, contact (800) 409-5111. ●

The Ultimate Back Seat Driver

Your back seat driving parent/spouse/sibling/co-worker has nothing on the DriveRight. If you thought you were on the road with a uncontrollable criticizer, wait until you get a load of this product by Davis Instruments. It's a vehicle monitor that never lets up.

Davis DriveRight knows how fast you are going, how quickly you gunned it to beat that light, and how long you've been driving so obnoxiously.

The device connects directly to your driveshaft. Through a small, liquid-crystal-display device located inside the vehicle, it displays statistics such as your speed, the distance traveled, acceleration/deceleration, and the time. You can set limits for speed, acceleration, and deceleration, then make sure your settings aren't tampered with through a security feature. An alarm will sound when the limits are exceeded.

If you like, for about $75, you also can purchase special software that works with an IBM-compatible computer to create a database of each day's driving.

Davis is targeting the DriveRight product at parents who want to monitor a teenager's driving, car enthusiasts who want to track their performance, sales reps who need to fill out travel reports, and bosses who employ delivery drivers.

DriveRight is available from Davis for $195. For more information, call (800) 293-2847 or (510) 732-7814. ●

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After creating your marketing materials with MyBrochures, simply place the color paper in your laser or inkjet printer and print however many you need. Paper samples and catalogs are included with the software for easy paper ordering.

No other software product displays as many paper designs on screen! And no other software makes it easier to work with these papers. With MyBrochures, the papers are displayed on the screen making it easy to place text, graphics, and photos.

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NOVICE NOTES

Newton's Apple Hits CD-ROM

***What's The Secret?* uses a roller coaster to demonstrate physics.**

Few school subjects can make children cringe faster than science and mathematics. Using multimedia computing to teach those subjects nearly always makes them more interesting and enjoyable, though, because children can find an exact topic that interests them and can work at their own pace.

What's The Secret? from 3M gives children a chance to view science and math in a new light, while helping them hone their inquisitive skills.

What's The Secret? is a CD-ROM program available for Microsoft Windows and Macintosh. The program is based on "Newton's Apple," a family science television show out of St. Paul, Minn., that has been broadcast nationwide on the Public Broadcast System for 12 years. What's The Secret? is the first in a planned series of interactive science and mathematics CD-ROM programs expected from 3M.

Topics available for exploration in What's The Secret? include the movement of sound waves through various substances, the movement of blood through the human body, the behavior patterns of bees, and the physics of roller coasters. Users can view video clips or listen to audio clips explaining the various topics.

What's The Secret? is a truly interactive program because the user controls the method with which the topics are presented. Users can perform various interactive on-screen experiments and demonstrations. A glossary of pertinent terms is presented with each topic, and simple experiments that demonstrate the topics can be printed. Users can type notes into a personal notebook to remember things learned in the program.

The program is easy to use because of its simple graphical interface, allowing you to click the mouse button to access a new topic or to move around within a topic. 3M says the product is aimed at 8- to 12-year-olds, but the large amount of reading required to perform certain experiments and demonstrations might frustrate some younger users. Children older than 12 will enjoy the program and learn something from it (as will many adults).

What's The Secret? costs $59.95 and requires a 486 microprocessor, at least 4MB of RAM (8MB of RAM is recommended), and a sound card.

For More Information:

3M
(800) 219-9022 ●

Don't Miss This Bus

What's long, psychedelic yellow, and flies through space with the greatest of ease? No, it's not the Great Banzini and his Flying Banana Circus. It's The Magic School Bus featured in an entertaining line of CD-ROM educational programs by Scholastic Inc. and Microsoft Corp.

In *Scholastic's The Magic School Bus Explores The Solar System*, kids ages six to 10 can hop on the Magic School Bus to explore outer space, or they can venture through inner space in *Scholastic's The Magic School Bus Explores The Human Body*.

Both adventures are inspired by the best-selling book series "The Magic School Bus," published by Scholastic.

As Ms. Frizzle and her science class take off for outer space in The Magic School Bus Explores The Solar System, Ms. Frizzle gets lost. Along with the school children, the player explores outer space, learning about the planets and the solar system. Everything is a clue to where she might be hiding.

Things take a turn for the worse in The Magic School Bus Explores The Human Body. One of Ms. Frizzle's students, Arnold, accidentally mistakes the shrunken bus for a cheesie weesie and swallows it, along with Ms. Frizzle and his classmates. It's the player's mission to explore the 12 body parts and try to find a way out of Arnold's body.

Throughout both adventures, kids can delve into multimedia reports on the planets or parts of the body to solve each dilemma, and they can conduct science experiments to get a better understanding of the concepts being taught. For example, they can see just how many Plutos it takes to equal the size of one Jupiter.

To challenge kids' physical and mental reflexes, several games are scattered throughout the program. They may have to jump from ice block to ice block in Saturn's rings, or play pinball by flipping red blood cells through the heart and lungs.

Scholastic's The Magic School Bus Explores the Solar System with Ms. Frizzle and her students.

We were impressed by the real NASA videos and pictures of the planets' surfaces in the space exploration adventure, and we liked the "clickables" that let you click on-screen objects to make them move or float away.

All in all, the interactive experiments, reports, and games show children that learning about science doesn't have to be all facts and figures; it can be fun. Both programs are available in stores for an estimated street price of $49.95.

For More Information:

Scholastic's The Magic School Bus Explores . . . series
Microsoft Corp.
(800) 426-9400 or (206) 882-8080 ●

The NFL's Greatest Plays

Spectacular Passes, Runs, And Blunders

Immaculate Reception. The Greatest Game Ever Played. The Catch. All refer to plays that have shaped the history of the National Football League. As the NFL celebrated its 75th season during 1994, professional football fans enjoyed remembering those great plays and games.

A collection of the most important and most entertaining plays now is available for viewing on your PC or Macintosh. Turner Interactive of Atlanta has teamed with NFL Films in polling 100 sports writers concerning the greatest plays in the league's history to commemorate the NFL's 75th anniversary. The plays chosen as the best ever then were ranked one through 75 and compiled in *NFL's Greatest Plays*.

Audio clips and video footage from each play, with video clips from as many as three angles, are included. You control viewing of the video clips, including the speed and size of the window. The video also can be run in reverse. A written explanation of the game situation leading up to each play and brief biographies of the key players involved are available for each play.

Those plays dubbed the greatest include the classics, such as Franco Harris' "Immaculate Reception" that carried the Steelers past the Raiders in the 1972 playoffs; and Dwight Clark's reception of a Joe Montana pass in the 1981 playoffs—simply labeled "The Catch"—that beat the Cowboys and keyed the 49er dynasty of the 1980s. Also on the list is Alan Ameche's touchdown plunge over right tackle that gave the Colts the 1958 title in the only NFL championship game ever decided in sudden-death overtime (called "The Greatest Game Ever Played"). Circus catches and spectacular runs aren't the only plays included with the program, though; a few of the greatest blunders made the list, too, such as kicker Garo Yepremian's botched pass attempt that nearly cost the Dolphins a victory in Super Bowl VII.

The CD-ROM program requires 4MB of RAM and works best with video drivers supporting more than 256 colors in the Microsoft Windows environment and with at least a 486 microprocessor. The estimated price of the product is $30.

For More information:

Turner Home Entertainment
(800) 294-0022
(404) 827-2890 ●

A clip of John Taylor's touchdown catch to win Super Bowl XXIII is among the *NFL's Greatest Plays*.

The Gourmet Computer

"What's for dinner?" is the eternal question heard around American households. Coming up with fresh recipes and meals is often more difficult than the actual cooking. If you follow the recipes found in *The Four Seasons of Gourmet French Cuisine* and *The Art of Making Great Pastries*, though, you'll come up with meals and desserts your family has never tried before (and probably can't pronounce).

The two CD-ROM programs, which were created by Arome Ltd. of Israel and are marketed in the United States by Cambrix Publishing of Woodland Hills, Calif., each feature more than 100 recipes. Each recipe is graded in difficulty of preparation and expense of ingredients, and the estimated preparation times are included. Difficult cooking techniques are displayed by professional chefs through video clips. Color photographs of the finished recipes are included, giving you a chance to see how your handiwork stacks up against a professional.

The Gourmet French Cuisine program splits its recipes into 25 three- and four-course meals, complete with appetizer, main course, and dessert. Meals are categorized by the time of the year they're best served as well as whether they contain beef, poultry, fish, or vegetables. Definitions of cooking terms contained in the recipes can be accessed through a mouse click. Recommended wines for each meal are also included.

Filled Meringue Shells is one of the more than 100 recipes available in *The Art of Making Great Pastries*.

In Making Great Pastries, you'll learn how to create amazing desserts. Once again, you can select the recipe based on its type, including dishes containing cake, dough, cream, or fruit.

The CD-ROM programs contain a number of exotic and interesting recipes, but, unless you really enjoy cooking or you're extremely handy in the kitchen, most of the recipes will be far too complicated. You'd better enjoy searching for odd foods, too; many of the ingredients won't be readily available in your neighborhood grocery store. And while the video clips of the various techniques are helpful, it's doubtful you'll be able to use them while you're cooking, unless you plan to haul your computer into the kitchen.

The CD-ROM programs, which have a suggested price of $59.95 each, require a minimum 386SX microprocessor, Microsoft Windows 3.1, DOS 5.0, and a sound card. Macintosh versions are available, too.

For More information:

Cambrix Publishing
(800) 992-8781
(818) 992-8484 ●

Spice Up Those Spuds

Tired of always making the same old roast beef and mashed potatoes for dinner, but can't think of anything else? The Potato Board has come to your rescue with this easy-to-use, menu-planning software.

Ready, Set, Dinner has all the ingredients needed to plan mouth-watering dishes: a library of 40 family-pleasing recipes, a weekly menu, and a shopping list.

This program, with its intuitive point-and-click interface, gives users different recipe options for dinner. For example, the software has recipes for poultry, pork, beef, fish, vegetarian meals, soups, and salads. Users can click on one of these primary ingredients for a list of recipes under that category or narrow the choice by clicking on the Last Minute Wonders, Dinner for Two, Kid Pleasers, Around the World, or American Favorites buttons.

Forty great recipes, accessed from this screen, await users who take advantage of *Ready, Set, Dinner*'s software.

After choosing a category, the recipe will appear on-screen. Users can either print the recipe or read the attached nutritional information. All of the recipes in this program show users how to spice up the average potato. Some of the recipes include Bistro Beef & Potatoes Maison (Dinner for Two), Breakfast Burritos Anytime (Last Minute Wonders), Cowboy Pizza (Kid Pleasers), Bora Bora Burgers with Potato Nuggets (Around the World), and Mom's Crispy Chicken & Potatoes (American Favorites). Users also can add their favorite recipes to the preset list by selecting the Add-A-New-Recipe button.

Ready, Set, Dinner also has a Weekly Planner, in which users can create a list of the meals scheduled for the following week. With this option, users can call up the planner to see what's on the agenda for tomorrow's dinner.

With the grocery list users can transfer a desired recipe from the recipe file to the grocery list for their weekly visit to the store.

Besides showing recipes, this feature also has a Notes section so users can add everyday things, such as milk and bread, to the list. This grocery list then can be printed for future use.

The installation of this product is so easy that no manual is required, even for beginning computer users. New users just have to open the Readme.txt file to get a simple set of directions. This software package is free, except for a $2.99 shipping and handling charge. When ordering the product, users must specify whether they want a Macintosh or Windows version. If users need a Windows version, they must tell whether they require 4MB or 8MB of RAM.

For More Information:

Ready, Set, Dinner
P.O. Box 1416
La Mirada, CA 90637-1416
(mail inquiries only) ●

Fill 'Er Up (The Screen That Is)

Would anyone buy software from a company that sounds like it's made up of a business stiff and two guys that used to get daily wedgies in gym class? They might if the unlikely group came up with an innovative and entertaining product. Fortunately for the new Houston-based company called Two Nerds And A Suit, their first product seems to fit that description.

Earl (the suit), Bobby, and Dheeraj grew bored with screen savers despite the scores of versions on the market. In a quest to entertain themselves and others, the three joined forces to create *ReeLife*, a full-screen, full-motion video screen saver. The program, contained on CD-ROM and retailing for about $20, will be a welcome relief to screen saver users who've overdosed on flying toasters and cartoon characters.

The two nerds loaded ReeLife with six modules containing a total of 170 full-motion film clips—that's actual film, not animated versions of life. The clips fill the screen rather than just a small window like you may have seen in other products. The screen saver runs directly from the CD-ROM. That's a bonus in terms of hard drive space and memory saved. This setup also keeps the video running at a watchable pace and free of jerky action, though the images are a bit grainy on most computers. Running from the disc is also a drawback, however, because no other CD-ROM can be used while ReeLife is running.

The modules satisfy a variety of tastes. The Sports selections feature hip, on-the-edge diversions such as skydiving, rock climbing, skiing, and whitewater rafting set to music. Faces allows you to see and hear speeches by the likes of John F. Kennedy, Jr., Richard Nixon, and Ronald Reagan. America covers familiar sights from the Statue of Liberty to grilling burgers, and Places offers brief, narrated tours of New York, Tokyo, and the Egyptian pyramids. Classical music accompanies lumbering elephants and playful humpback whales in Wildlife.

The ReeLife innovation goes beyond the product itself. The suite weighed in with a clever marketing plan. The screen saver is available in a disc-sized package

rather than a bulky box. Two Men And A Suit plans to present the product in a self-contained display that encourages impulse buys. The company hopes to make ReeLife something like the software version of a checkout line candy bar. Unlike the candy, however, you won't regret buying this new screen saver on your way through.

Two Nerds And A Suit
(713) 862-5710 ●

Pour Out Your Ideas At The WELL

Always wanted to publish your work but weren't sure if it was good enough? Your wish is The WELL's command. Members of this online community can now introduce their multimedia content onto the Internet without worries of rejection.

The WELL, which stands for Whole Earth 'Lectronic Link, has announced the opening of WebExpress, a World Wide Web self-publishing service. This service gives individuals, nonprofit organizations, and businesses the chance to develop a series of Web pages that deal with social, cultural, political, technical, and personal projects and ideas. The content of the Web pages is left up to the individual or group designing the page and can include text, graphics, and audio effects.

Even though members are in charge of developing their own original Web pages, The WELL has established a page in order to help users find free software dealing with creating a Web page. The system also has a Web conference to help members who have questions about starting their own page, as this task can be quite tedious and time-consuming.

However, once users get the hang of the system, publishing becomes easier. Members simply compose their work on the Web pages and then tell potential readers where to find the published material. Readers can find this material by simply logging on to the Internet through The WELL and then typing in a Universal Resource Locator (URL), which is a Web address.

The WELL's Web program had been in its experimental stages until January 1995. The experiments proved successful, as The WELL was the first online service to sponsor a global Internet New Year's Eve party called First Night In Cyberspace. This party let WELL members from around the world ring in 1995 together.

The WELL was started in 1985 by a group of independent thinkers and writers who wanted a new way to disseminate information in an intellectual environment. The cornerstone to The WELL's diversity lies in its motto "You Own Your Own Words." This idea gives members ownership to the words they write on The WELL and extends to the Web pages, where members retain the rights to any original work they post online.

The Web publishing program isn't prohibitive to any members or groups who want to publish Web pages. The first half megabyte of Web directory space is free with a WELL membership. After that, the next 1.5MB of space costs $5 a month. Additional megabytes after the first 2MB cost $5 a month per megabyte.

For More Information:

The WELL
(415) 332-4335 ●

Gulf War Dogfights

Fans of aviation and the use of aircraft in war usually focus on aircraft from the World War II era, in part because detailed information about modern aircraft hasn't been available. Maris Multimedia, however, has pushed aviation information to a new level with *Warplanes—Modern Fighting Aircraft*, an interactive CD-ROM program.

The precise graphic renderings of airplanes and military bases give *Warplanes—Modern Fighting Aircraft* a unique look and feel.

Warplanes, which costs $69, contains technical information on more than 500 airplanes and 200 weapons systems used around the world in combat from 1976 to the present. The program features information about aircraft not only from the U.S. Air Force, but also from every other country with military aircraft, including the former Soviet Union, Great Britain, and Iraq. A history of key aviation events since 1976 is included.

The wealth of information isn't what will grab your attention first, though. The program's detailed artwork makes it among the most impressive programs on the market. More than 1,000 full-screen photographs of the various airplanes and weaponry are available, as well as many audio clips and more than one hour of video clips. Much of the video is from the Gulf War. The program is extremely powerful, giving you detailed information about a variety of subjects dealing with military aviation. The precise graphic rendering of aircraft, military bases, and weaponry—which are three-dimensional models based on manufacturers' plans rather than artists' interpretations—give Warplanes a unique look and feel.

Warplanes contains numerous simulations of key battles and strategies carried out during the Gulf War, including three-dimensional drawings of various aircraft. After you've investigated the aircraft used in the various battles, you can try one of three flight simulators featuring the A-10, Su-27, or C-130 Hercules aircraft.

Maris Multimedia, which also has developed the powerful astronomy program *RedShift*, plans to release six different CD-ROM discs as part of the Warplanes series, with each disc focusing on a different part of military aviation.

Warplanes runs under Microsoft Windows and requires a minimum 386SX microprocessor, 4MB of RAM, SuperVGA graphics (with 256 colors), and a sound card. (The program will run without sound.) The flight simulations must run under DOS, and they require at least 540KB of free conventional memory. A Macintosh version and a PowerMac version are included on the same CD-ROM as the Windows version.

For More Information:

Maris Multimedia
(800) 336-0185 ●

Using DOS 6.2's MemMaker

Most people get left behind when it comes to making the most of their PC's true memory potential.

It seems like there's no end to it. You add memory chips to your PC. Still your DOS games don't run. You add a fax board to your system that is supposed to know when inbound calls are either fax or voice. The darn thing won't work. And to top it all off, whenever you upgrade your computer, it seems that something else ceases to run properly.

Sometimes, programs that work for you "in the background" can take more memory than your PC can give up. Many DOS games are quick to tell you that they need *X* amount of memory, but when you make that amount of memory available, they still flash insufficient memory messages. It can be a nightmare, especially if you don't understand the concepts of cloaking, extended, and expanded memory.

Most people get left behind when it comes to making the most of their PC's true memory potential. If you feel that you might be able to gain a bit in the race for more memory for your DOS and Windows applications, there's a sure-fire, free way to get up to speed.

DOS 6.2 And MemMaker

Microsoft's MS-DOS 6.2 comes with a free memory management software product that helps you squeeze that extra bit of capacity out of your computer. The product is called MemMaker, and it is included with MS-DOS 6.2.

MemMaker looks at your computer and your startup files, Autoexec.bat and Config.sys. It then restarts your PC, running these two files so it can figure out how your PC is fitting these programs into its memory capacity. MemMaker will gauge your current use of memory by measuring how much is in use. Then it does some math to find hundreds, if not thousands, of possible ways to rewrite your Autoexec.bat and Config.sys files so that the files they run use less of your valuable conventional memory. (**Conventional memory** is used on a first-come, first-served basis by a computer, its operating system, applications, and more. Beginning at 0 kilobytes (KB), memory is given out as it is requested. Conventional memory is first grabbed by DOS and system files, then by the applications loaded on the hard drive. Data files within these applications have whatever conventional memory is left.)

If MemMaker thinks it can put some of the programs that normally run from your startup files into smaller chunks of memory, it does so. The result is that your PC runs programs listed in your Autoexec.bat and Config.sys files more efficiently, fitting them more closely into well-tailored hunks of memory. It's kind of like having a tailor size and fit a suit of clothes to every form and shape on your body. MemMaker does the same thing. The result is that programs "fit" better, using less space in the process, thus making more memory available.

Memory Basics

If you use a Macintosh, every kilobyte of memory plugged into your computer in the form of memory chips is available to every single program. If you're using the beta (an early, test version) of Windows 95 and you are not running any DOS software, you'll note that Windows 95 treats all of your computer's memory as one big bucket of room to move.

It's different with Windows 3.1, as well as with DOS. Memory management is a bit of a hassle because MS-DOS does not believe that it can run your programs outside of the first 640KB of memory capacity in your computer (usually called conventional memory). Windows users with eight megabytes (MB) or 16MB of memory are in the same boat as those of us with less-well-endowed PCs.

Running MemMaker is a lot easier than you might expect, and there is less to go wrong, too.

You see, Windows is an "environment," which means that it has to work with operating system software (like MS-DOS) in order to run. No DOS, no Windows. Don't test this at home, kids! Take it from the source.

Here's the catch that escapes most people: You must have just under 400KB of available memory in order to run Windows. If you cut it close, many Windows programs won't run because of insufficient memory, even though Program Manager's Help About window tells you that your machine has at least 4MB or 6MB free. The truth be known, many so-called Windows applications and programs are really DOS programs with a pretty face that makes them look like Windows programs. (For more information about memory, see "Setting Memory Free In DOS" in the March 1994 issue of *PC Novice*.)

Last Minute Advice

MemMaker, like other programs of its ilk, can only gauge the amount of space being used by the programs run from your Autoexec.bat and Config.sys files. It can't know if the order in which they run is important. For example, some VoiceMail boards run multiple programs from Autoexec.bat in order to do their job. In some cases, these software programs need to run in a special order or sequence. MemMaker may be able to find better "fits" for these programs, but in doing so, MemMaker may change the order in which they run, with some pretty weird consequences.

MemMaker can help a lot, but some things can go wrong. If you don't understand your Autoexec.bat and Config.sys files and their contents, you would do well to copy these files to a floppy diskette before using any product like MemMaker. If MemMaker screws anything up, you can just copy your startup files back into the root directory of your hard drive and forget you ever ran MemMaker.

Getting Started

Running MemMaker is a lot easier than you might expect, and there is less to go wrong, too. You start MemMaker by typing:

```
memmaker
```

at the DOS prompt and pressing ENTER. Trouble? If MemMaker fails to run, you should see an error message like "Bad command or file name" or "File not found." If this happens, switch to your DOS directory and try again. If you get a message that says you don't have enough memory to run MemMaker, restart your PC and press the F5 key when you see the message "Starting MS-DOS." The F5 key tells DOS to skip running your Autoexec.bat and Config.sys, temporarily making room in memory to run MemMaker. Then try the MEMMAKER command again to run the program.

When MemMaker first runs, you'll see an introductory screen that describes what MemMaker does for your PC. At this point, you can quit MemMaker or continue. Press ENTER to continue running MemMaker.

The next screen that appears offers you the option of using the Custom or Express Setup. Custom Setup is for people who are well-versed in memory management and its intricate facets. Press

Figure 1: MemMaker's opening screen prevents first-time users from getting lost.

Figure 2: Beginners should opt to go the Express Setup route by pressing ENTER when this screen is displayed.

ENTER to run the Express Setup. The Express Setup is the closest thing to a "no-brainer," and is recommended for its easy use.

Older DOS programs, such as some versions of *WordPerfect for DOS*, may not run well without the presence of expanded memory. MemMaker will supply it if you press the space bar now; otherwise, press ENTER to let MemMaker continue without creating expanded memory. If you only use Windows software, press ENTER to avoid the expanded memory option. (**Expanded memory** is a type of physical memory, up to 8MB, that can be added to computers.)

Now that the expanded memory issue is out of the way, MemMaker is ready to analyze your computer's startup files and the memory space used by the programs they run. At this point, MemMaker will check your PC for the presence of Windows, then you'll see a screen that tells you that MemMaker is going to restart your PC. (You'll notice while running MemMaker that it displays a text screen at every step of the process that tells you exactly what it's doing, making it difficult to get lost.) Make sure that no floppy diskettes are in your floppy drives now. Press ENTER to let MemMaker restart your computer and go on to the next step. At this point, MemMaker becomes a piece of cake. The expanded memory choice was the only one that required that you read your software's manuals, if even that.

Running MemMaker

We don't know why, but for some reason, MemMaker feels the need to tell us just how many possible combinations have been reviewed for the best possible configuration for your PC. If you're easily impressed, the number might almost scare you. MemMaker may find as many as two thousand possible combinations to check out on your PC. In the end, MemMaker will choose just one with or without your input. However, if you run MemMaker frequently to optimize your computer's memory, the number of possible combinations will dwindle with each "pass" that MemMaker makes over your startup files.

Once MemMaker has analyzed the needs of the programs run from your Autoexec.bat and Config.sys files, press ENTER to nudge MemMaker along in its quest to optimize your PC's memory. When you press ENTER, MemMaker will restart your PC. When your PC restarts, it will be using MemMaker's idea of an optimized set of startup files. Don't worry about this process too much. MemMaker also creates backups of your old startup files. If anything goes wrong from this point forward, MemMaker simply reinstates your original startup files.

MemMaker may find as many as two thousand possible combinations to check out on your PC.

If you were watching your display while your computer restarted this last time, you might have seen a few DOS error messages that may impact the way your computer runs. In a nutshell, these error messages are telling you that MemMaker may have screwed up your PC without knowing it. If you see error messages during the last restart, you may want to ask MemMaker to reinstate your original Autoexec.bat and Config.sys files just to be safe.

Unless you saw an error message, keep MemMaker's changes by pressing ENTER. If you are a little perplexed and would like some further clarification on making this judgment, go ahead and press the F1 key to get some basic help on making this choice.

If you want to chicken out now, press the space bar on your keyboard to abort the mission. If you have no cause for alarm, press ENTER to find out how much extra memory you just gained.

In the next screen, MemMaker will tell you it's provided you with additional memory capacity. If all of this screen jargon seems confusing, try to focus on just two numbers: The amount of conventional memory available before running MemMaker and the amount of conventional memory available after running MemMaker. Subtract the post-MemMaker amount from the pre-MemMaker amount to get a picture of the real gains.

In Figure 3, MemMaker only gained 16KB. We have seen gains of more than 200KB by using MemMaker on different test computers. The amount you gain will be directly related to the number of programs run from your Autoexec.bat and Config.sys files.

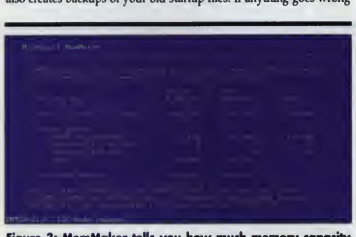

Figure 3: MemMaker tells you how much memory capacity you just gained, in this case, 16KB.

Other Options

There are other memory management programs that can help you gain more available conventional memory the way MemMaker does (see "Making The Most Of Your Computer's Memory" in the October 1994 issue of *PC Novice*). Some of these programs may have stronger features than MemMaker, but you'll pay a pretty penny for them. Game players often will see a marked improvement in their computer's performance while they're running their memory-guzzling DOS games. ●

by Robert Mullen

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How To Check Printer And Modem Ports In Windows

That tangle of wires behind your computer does more than simply supply power and allow your keyboard to function. Somewhere in that maze are the cables for various devices. What are they, and how can you tell which device is where on your computer?

If you have Windows, you can easily determine how key peripherals communicate with your computer.

Like its name suggests, the port is the entrance for a device—usually a printer or a modem—and its gateway to the computer. The connection between computer and device is called a communications (COM) or serial port.

The COM port is used to read and write data. The information is sent from the computer through a serial line to the communications port. The software looks for a port and then determines how to communicate with the device in order to transfer the data properly.

The internal hardware, which makes the connection between computer and device possible, is known by several different names. It may be referred to as a **serial adapter, serial card,** or **serial interface card**. A computer typically has two serial ports and one parallel port with the capability of having up to four devices connected to them. Some systems can have up to eight ports. The connections for the serial ports are located in the back of your central processing unit (CPU).

Without knowing where anything is located, these devices cannot function. Checking serial port settings through Windows' Control Panel is simple. This Control Panel can be found under the Main group in Program Manager.

The Control Panel icon is your key to delving into the intricacies of how parts of your system work. Here you can alter the look of your screen and determine essential information, such as the communication port settings.

It's in the Ports window that you will see basic settings, such as the baud rate, parity, and stop bits for your serial ports. This information allows the computer and device to communicate with each other. You must know what the correct settings are for your devices to work. If the settings are not the same, it's as if two people were not speaking the same language. Neither can understand the other without a common means of communication.

To check or change your serial port setting, go into the Control Panel window and select the Ports icon. Select the port you want to check or use and click on the Settings button. Simply look at or change any of the settings, then select OK and close.

Specific information about the settings can generally be found in any product literature that came with your printer or modem. In the majority of instances, you will only use the serial ports COM1 and COM2. In the event that you use COM3 or COM4, adjustments may need to be made to the advanced settings. The more devices that are connected to your computer, the more likely there will be some conflict between them.

By clicking on the Advanced button, you also can check or specify changes regarding detailed settings. The settings in this Window determine the input/output address or the **interrupt request line (IRQ)** that Windows uses to send information to a serial port. Generally, you will not need these unless you have to refine your settings because of a conflict between mouse and modem or an unresponsive device. If this happens, you may need the assistance of a technical support person.

It's important that the settings you specify for the communications ports do not conflict with settings used by other devices installed on your system. Again, the conflict may come from a mouse or network card that controls sound enhancements. Read the manuals for each device for information about the settings.

When you do change the information in the Advanced window, a dialog box may appear, asking whether you want to restart Windows. Select the Restart Now button if you want the new information to immediately take effect.

If you are attempting to determine how a modem connected to a serial port sends information to another computer, you will have to use a communication program rather than Ports. If you are unsure whether you have such a utility or if you do not have communications software, go back to Program Manager and select Terminal from the Accessories window. Here, under Settings, you can select Communications to read and edit this information. Otherwise, you will need to make the changes from within your software program.

As is the case with any Windows-based task, it takes time and humility to access Help; however, these basic instructions will assist you greatly. When in doubt, the F1 key is your S.O.S. signal to Windows.

Troubleshooting the most basic of problems with your printer or modem is not a complicated procedure. Most of the diagnostic work, after checking to see that the power is on and cables properly connected, can easily be solved by double checking the ports information for each device. ●

by Linda Dailey Paulson

The Control Panel window allows you to examine some of the intricacies of your computer's system.

Within the Ports window, you can check information vital to communicating between the devices and computer.

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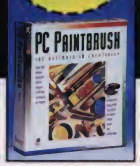

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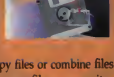
DOS Command Dictionary

How To Use Different DOS Commands



COPY

The COPY command, which was introduced with version 1.0 of DOS, allows you to copy files or combine files. When copying a file, you can place the copy in a new file or overwrite an existing file. When appending files, you can tack them onto an existing file or combine them into a new file.

When copying a file, you must specify a destination file or a destination path. You can't copy a file with the same name into the same directory as the source file, but you can have files with the same names in different directories. For example, if you want to copy a file called Report.doc and call the duplicate copy Report.bak, you"d type:

```
copy report.doc report.bak
```

at the DOS prompt and hit ENTER. When specifying the destination for the copy of the file, you can simply type a new filename if you want the copy to reside in the same directory as the original (as we did above), or you can specify a particular path for the copy. If you have a large number of files for which you want to create backup copies, you'll want to use **wildcards**, which are symbols used in DOS to represent letters. The * (asterisk) represents any number of characters, while the ? (question mark) represents a single character. For example, *.* and ????????.??? would represent all file names possible in DOS. Let's say your report files are named Report01.doc, Report12.doc, Report.wrd, and Report.001. To copy all of them at one time to diskette, you'd type:

```
copy report*.* a:
```

and hit ENTER. This command would copy all files with **report** as the first six letters in the filename and with any combination of letters after that. All of the files would be placed in the root directory of your diskette. In each of these examples, the files we were copying were in the directory in which we were working.

When combining files, you don't have to specify a destination file. If you don't, the files will be appended to the first file in the list. Files to be combined must be separated by a + (plus sign). To combine three files into a file called Report.fin, you'd type:

```
copy report.1+report.2+report.3  report.fin
```

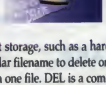
and hit ENTER. All of the files would be in the same directory in this example. If you wanted to combine files from different directories, you'd have to specify their directory paths.

(NOTE: Be careful when using the COPY command. If the name you choose for the destination file already exists in the directory you choose, the copied or combined files will overwrite the original file, and you'll lose your data in the original file, sometimes with no warning, depending on your DOS version.)

Parameters for COPY are rarely used. (A **parameter** gives you additional options when using a DOS command.) The only time you might use one is when you want to assign the current date and time to a file without editing it. To update the date and time of a file called Report.doc, type:

```
copy /b report.doc+
```

and hit ENTER. (You might be asked, depending on your version of DOS, whether you want to overwrite the file. Type *Y* and hit ENTER to update the file's time and date.) If you didn't use the **/B** parameter, the COPY command would only update the file until it ran into an end-of-file command, and you might lose a portion of your file. (Some word processing programs inadvertently insert end-of-file commands throughout a document. The commands usually are invisible.) The **/B** parameter tells DOS to treat the file as a **binary** file, meaning the computer reads it as a series of zeros and ones in computer language. End-of-file commands are ignored when a file is treated as a binary file.



DEL

The DEL command, introduced with DOS 1.0, allows you to remove a file from permanent storage, such as a hard disk or a diskette. You can use it with a particular filename to delete one file, or you can use wildcards to delete more than one file. DEL is a command you'll use quite a bit (or your hard drive will fill quickly). It's probably the command with the most potential for

serious error, especially when using wildcards. If you're nervous about making an accidental deletion, use the **/P** parameter (which was introduced with DOS 4.0). With the /P parameter, DOS will confirm you want to make the deletion before it occurs. Without the parameter, DOS won't warn you about which files it's going to delete.

If you wanted to delete a file called Report.bak, you'd type:

```
del report.bak
```

and hit ENTER. If you wanted to delete all files with a .bak extension, but you wanted to have each deletion verified before it occurred, you'd type:

```
del *.bak /p
```

and hit ENTER. Using the /P parameter whenever you are deleting files and using wildcards is a good safeguard, especially until you become more comfortable with using the DEL command. Remember, typing **del *.*** will delete all files in a directory, so you should use extreme caution when using wildcards and the DEL command.

(NOTE: DEL doesn't remove directories or subdirectories; the RD command [which was listed in the December 1994 "DOS Command Dictionary"] performs that function. DEL only works with files.)

EDIT

The EDIT command, introduced with DOS 5.0, will give you access to the DOS Editor, which is a basic text editor mainly used to edit DOS program files, such as your Autoexec.bat file. The EDIT command doesn't place hidden commands into your files (like a word processing program sometimes does), which makes it ideal for editing your delicate system files. The EDIT command was introduced with DOS 5.0.

To use EDIT to make changes to your Autoexec.bat file, type:

```
edit autoexec.bat
```

at your system prompt and hit ENTER. (If you don't specify a file to edit, the DOS Editor will take you through a series of help screens.) The DOS Editor looks a little like a Microsoft Windows screen, with command menus you can access through a combination of the ALT key and other keys or with a mouse. (A **command menu** is a general menu you select to gain access to more specific choices and commands.) Once inside the DOS Editor, you make changes to files in a manner similar to a word processing program.

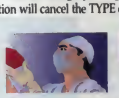
EDIT is designed to replace the EDLIN command. EDLIN, which is a text editor that was included in DOS 1.0 through DOS 5.0, isn't included in DOS 6.0.

TYPE

The TYPE command, introduced with DOS 1.0, will display the contents of a file. It's especially useful for viewing the contents of files such as Config.sys or Autoexec.bat. The contents of some files can't be displayed using the TYPE command. To use the TYPE command, type:

```
type autoexec.bat | more
```

and hit ENTER. Using the | (pipe) with the MORE command causes the file's contents to be displayed one screen at a time. If you use TYPE on an extremely long file, and you don't use the MORE command, you can halt the scrolling by using the CTRL-BREAK key combination. This action will cancel the TYPE command.



VSAFE

The VSAFE command, which is available beginning with DOS 6.0, continually scans your computer for performance indications that show the existence of a virus. (A **virus** is a computer program that is designed to be a nuisance to your computer, possibly resulting in data loss or a system crash.) You can select to have various options enacted with VSAFE through the use of parameters.

There are eight VSAFE parameters. The **/1** parameter warns you of an impending formatting of your hard disk; **/2** warns you of a program trying stay in memory; **/3** prevents any program from writing to a hard disk without your knowledge; **/4** checks each program file opened by DOS; **/5** checks the boot sectors of storage devices for viruses; **/6** warns you when a program attempts to alter the boot sector of a hard disk; **/7** warns you when a program attempts to alter the boot sector of a diskette; and **/8** warns you when a program attempts to alter a program file. The /1, /4, /5, and /6 parameters are automatically enacted when you start VSAFE. You can use a + (plus sign) after the number to enact a parameter, and - (minus sign) after the number to disable a parameter. To use VSAFE with only the /1, /5, /6, and /7 parameters enacted, you'd type:

```
vsafe /4- /7+
```

and hit ENTER. Once VSAFE is enabled, you can type an ALT-V key combination to view the Vsafe Warning System dialog box, which shows the options currently enacted. You can change the options enacted or disable VSAFE from this dialog box. The **/U** parameter also causes VSAFE to stop running and removes it from memory when you type:

```
vsafe /u
```

and hit ENTER. When VSAFE is running, it will occupy some RAM and slow down your system's performance because it's constantly checking all activity between RAM and your hard disk or diskette. Unless you're particularly susceptible to viruses—because you often share files and diskettes—VSAFE probably isn't worth the performance loss. ●

by Kyle Schurman

Experimenting With Your PC

Here at *PC Novice*, we get a lot of letters from folks who listen to local computer "gurus," then make changes to their computers, only to find out that the changes weren't that simple! When you take the advice of someone who isn't by your side when you try new things on your PC, some mysterious results can occur. Mysterious or not, some changes made without the full knowledge of the potential results can cause a "down" PC, shop charges, or the loss of software that was there yesterday but is now among the missing.

While there are plenty of reference books out there, we don't find many that help our readers deal with common problems brought about by simple tinkering. This lack of suitable references only makes already-daunting tasks more intimidating.

Experimenting with a PC is one of the best ways to learn about computer hardware and software. To help you deal with many of the common facts, foibles, and frailties of the average, garden-variety personal computer, we've assembled some of the problems you've sent in to us.

Common DOS Problems

Ask any Macintosh owner and they'll tell you that "Friends Don't Let Friends Do DOS." They mean it. Why this sad commentary on the PC from all those Macintosh users? Because when you make changes to your computer, things can go wrong if you're not careful. You can read the most competent books on computers available today and they can leave out key facts that can get you into trouble.

On these pages, we're going to outline some of the most common challenges that face many PC novices. It's true that you need to do and try things in order to learn, but you don't have to sweat bullets in the process. Take a look at these common obstacles to success and see if you've been able to avoid these well-known pitfalls in your quest to become a more knowledgeable PC novice.

• Installing Software

▲ **Potential Problem:** I try to run DOS' BACKUP program, but a message is displayed that tells me that I have the incorrect DOS version. What does this mean?

▲ **Reason:** DOS 6.0 and higher neglects to install the latest versions of DOS' BACKUP program. DOS is instead finding an older version and is refusing to run that program because it's too old.

▲ **Fix:** You need to "fool" DOS by telling it that it's dealing with a different version. To do this, type this command at the DOS prompt:

```
setver backup.exe 5.00
```

• Installation Hassle

▲ **Potential Problem:** Every time I try to install a software product, my computer tells me to close any virus programs that may be running.

▲ **Reason:** Virus protection programs will consider many software products to be viruses during their installation processes.

▲ **Fix:** If you've installed virus-protection software, you'll need to disable it:

1. Place the REM command and a space in front of the statement in your Autoexec.bat file that runs your antivirus software.

2. Save the change to your Autoexec.bat file. If you're using DOS Editor, press ALT-F, then *S*, and then ALT-F and *X* to exit the editor program.

3. Shut your computer off, then reboot it. You need to reboot your computer in order to activate the changes you're making to your startup files.

4. After rebooting your computer, install your new software product.

5. Return to your Autoexec.bat file, remove the REM command, and save your changes.

6. Shut your computer off, then reboot it. Your problem should be solved.

• Hardware Nightmares

▲ **Potential Problem:** I put a modem in my PC and now my mouse doesn't work!

▲ **Reason:** Mice and modems use special hardware lines to communicate with your PC's microprocessor. These links are called **Interrupt Request Lines (IRQ)**. Each port on your PC is supposed to use a different IRQ. Your modem is probably configured from the factory to use the same link as the one used by your mouse.

▲ **Fix:** Unplug your modem and see if your mouse works OK. If the mouse works, check the modem's manual to find out how to change the IRQ (or COM port) used by the modem. If your PC came with a mouse installed, it's probably using COM1. Set the modem to COM2 and your problem should disappear. (Communications ports can be reset by opening Program Manager's Main group, clicking on Control Panel, and then clicking on the Ports icon. In the Ports dialog box, select the port to be changed, then click on the Settings button.)

• Missing System Files

▲ **Potential Problem:** I either deleted or moved my system startup files called Io.sys and Msdos.sys. Now my PC won't start from the hard drive.

▲ **Reason:** Your PC can't find these two normally hidden system files that are needed to run your PC. (**Hidden files** are not shown in a normal listing of a directory's files in order to protect them from changes or accidental deletion.) If you move these crucial system files, your PC won't start.

▲ **Fix:** Reinstall DOS from your DOS diskettes or type **sys c:** at the DOS prompt if you have a bootable diskette on hand. This command copies DOS' system files back onto your hard drive.

• Garbled Printer Output

▲ **Potential Problem:** I bought a new printer and installed it per the instructions included, but it doesn't print my *WordPerfect for DOS* documents correctly. Weird characters are printed and lines of text begin and end on the paper where they shouldn't.

▲ **Reason:** The software you're using is not Windows software; therefore, it expects to be connected to specific printers based on which printers have already been installed.

▲ **Fix:** The problem probably lies with your software and not your printer. First, make sure the printer cable is one that is designed for use with your printer. Some old printers used "special" cables that don't work properly with today's printers. Next, check the manual for your software to find out how to install a device driver program for your printer. A **device driver** is like an interpreter between your software and the printer. With some software products like WordPerfect for DOS, the wrong driver can make any printer act weird. Install the right driver for your printer. Your software manual should tell you how.

• Video Mania

▲ **Potential Problem:** I bought a new monitor and video board for my PC, but when I plugged them in I noticed little or no improvement when using Windows programs.

▲ **Reason:** All video boards designed for use with Windows, as well as many new monitors, require you to install device drivers that maximize the potential of your new hardware.

▲ **Fix:** There should have been a device driver diskette bundled with your video board. Place the diskette in your floppy drive and run the Setup program that is found on the disk. If there isn't one, run Windows' Setup utility (if the installation process says you have to) to install your new video drivers. (Windows Setup can usually be found in the Program Manager's Main group.) If in doubt, refer to your video board's manual or your Windows manual for more information.

• Upgrading To Multimedia

▲ **Potential Problem:** I upgraded my PC with a CD-ROM drive that is meant to be run by my computer's IDE controller. (**Integrated Device Electronics [IDE]** is a type of disk drive interface that eliminates the need for separate adapter cards.) I can't get it to work and can't seem to find any drive parameters to set up the drive as though it were an IDE drive.

▲ **Reason:** IDE CD-ROM drives don't need to use drive parameters the way IDE hard drives do, but they do need multimedia device drivers run from Autoexec.bat and Config.sys just like other types of CD-ROM drives.

▲ **Fix:** Edit your Autoexec.bat and Config.sys files so that these driver programs are run to support use of such a CD-ROM drive.

• Adding A Hard Drive

▲ **Potential Problem:** I just installed a second hard drive in my VESA Local Bus (VL-Bus) PC. (**VESA local bus** is a type of local bus architecture that permits a technique by which some adapter cards attached to the motherboard can do some processing independently of the microprocessor.) When I run a **benchmark program** that measures the performance of both of my hard drives, I find that the new drive transacts data at a rate that is about one-third of that of my older drive. How can that be?

▲ **Reason:** Not all new drives are the latest and greatest. Some drives sold today are actually refurbished older drives that don't move data in multiple blocks, or groups of bytes. This makes them very sluggish at moving data back and forth to the microprocessor when compared to newer hard drives.

▲ **Fix:** Return the slow drive to whomever you bought it from and tell them that you need a drive that recognizes multiple-block transfers to take advantage of that extra money you spend for a VL-Bus computer.

• Eye Strain

▲ **Potential Problem:** I use my computer all day at work. When I turn my head slightly to answer the phone, I notice that my monitor's screen flickers. When I look directly at the monitor, the flicker seems to go away. What is going on here?

▲ **Reason:** Your PC's monitor is displaying information vertically, starting at the top and ending at the bottom of the screen. The speed at which your monitor/video board can do this is called **vertical refresh rate**. Your eye naturally filters out the flicker caused by a slow refresh rate unless you are using your peripheral vision. Flicker causes eye strain so it should be fixed.

▲ **Fix:** There are a few possible solutions:

1. Use a low-resolution video driver if you are using 800 x 600 resolution or higher under Windows. The higher the resolution you use with Windows, the slower the video performance.

2. Install a faster video driver if you are using the generic Windows VGA driver. Contact the maker of your computer's video board for the latest and fastest video driver.

3. Replace your video board and/or monitor with equipment that is VESA-compatible. Specify your need for this level of compatibility when you buy, and screen flicker should all but disappear.

• Audio CDs & CD-ROM Drives

▲ **Potential Problem:** I just installed a multimedia upgrade kit in my PC. The CD-ROM drive that came with the kit is supposed to play audio CDs, too. When I bring audio CDs in from the car, they "skip" when played in the PC's CD-ROM drive. They play just fine in my car. Why is that?

▲ **Reason:** Audio CDs skip for two reasons that are both caused by the same thing—light. If you scratch your CDs when you handle them, the laser unit in a CD player reflects its light in a slightly skewed direction, causing a skipping effect. If you place a cold audio CD in a player that has been kept in a warm environment and it fails to read or it skips, it's because condensation on the disc is causing the CD reader to read the drive inaccurately.

▲ **Fix:** Take care of your audio CDs. Don't let them get scratched and don't play them if there is some condensation on the unpainted side of the disc.

• Adding A Second CD-ROM Drive

▲ **Potential Problem:** I have two CD-ROM drives in my computer, both used for reference materials like encyclopedias and dictionaries. I recently installed a sound software product. From that day, only one of my CD-ROM drives will work.

▲ **Reason:** When you installed the audio software, the product must have replaced one of the command lines in your Config.sys or Autoexec.bat files under the assumption that you will have only one CD-ROM drive. A command line "switch" (or setting) must be used if you wish to use multiple CD-ROM drives. Your sound software may have replaced your existing commands with a command that doesn't include the **/D** switch. This problem also arises with CD-ROM drives that are intended to be used on a network, where installing new software has caused the MSCDEX program to be run incorrectly.

▲ **Fix:** At the DOS prompt, type:

```
help mscdex
```

Read up on how to replace the missing /D switch that must appear on the same command lines that run MSCDEX if you want to use multiple CD-ROM drives.

■ Making Changes

Today, most of the upgrades and enhancements that you can make to your computer are straightforward if you simply follow the instructions provided. There are, however, a few elements of common sense that you can use when making changes to your PC:

1. Always unplug your computer whenever you remove its case.

2. Make sure you copy valuable, irreplaceable data to diskettes for safe storage before any form of hardware upgrade.

3. Run CHKDSK/F or SCANDISK monthly.

4. Run a disk defragmenter program monthly, after you run CHKSDK/F or SCANDISK. Regular maintenance is key.

5. Before you install new software, check your hard drive for disk errors using CHKDSK/F or SCANDISK, then defragment your hard drive using DEFRAG.

6. When adding hardware that is intended or optimized for use under Windows, copy all .INI files to a safe location on your hard disk or diskette before you make the change. If the hardware change causes problems, you can simply restore your original .INI files to their previous locations.

7. Don't keep food or beverages in the area if you have the case off your PC.

8. When removing or disassembling your PC hardware, make a numbered list of the steps you take, reversing those steps during the reassembly process.

9. Parts that are removed from a PC should be physically organized in the same order as the steps you took to remove them. During reassembly, simply reverse your thought process on which parts should be used first.

10. Draw simple pictures of your hardware and settings before unplugging that critical component. After all, your new hardware component may be defective. You'll be thankful later that you had those illustrations to guide you through reinstallation.

11. Always handle plug-in circuits by their edges.

12. Never use muscle to budge hardware. If real strength is needed, you've probably overlooked a screw somewhere.

■ Take The Risk!

Don't be daunted by upgrades and repairs to your PC. Most of these actions are simpler today than ever before. If you feel at all handy with a few simple tools and are not terrified by the concept of working with electronic components, go ahead and learn by doing. You'll find the experience fulfilling and rewarding! ●

by Robert Mullen

Does Your PC Have A Mind Of Its Own? Here's How You Can Take Control...

BY CLARK PARKER

If you're like me, you probably look at your computer with equal parts awe and incomprehension.

Sure, the possibilities seem limitless, but it sometimes seems as if just switching your PC on requires advanced education. You can read the operating manual, but more often than not it seems to have been translated from Japanese to English by someone who knows only Swahili.

Go to your local bookstore, and you'll find hundreds of books — all written for somebody else's software. Of course, most computer manufacturers offer telephone helplines as a solution...if you don't mind sitting on hold for forty minutes and then forgetting the question you meant to ask, that is.

International Correspondence Schools (ICS) of Scranton, Pennsylvania has developed another option. It's called *distance education*, and for thousands of men and women around the world it's become the best way to learn the intricacies of computer hardware and software without having to go to class.

The way distance education works is simple. You enroll in the course that best suits your needs — anything from Desktop Publishing to an Associate in Specialized Business Degree in Applied Computer Science. Once you enroll, the school sends your instructional materials to your home or office. You get lessons, books, software, and best of all, your own IBM-compatible PC. The computer — which comes with a monitor, hard drive, and even an internal modem — is yours to keep, but if you already have a PC, you can save money on tuition. You use your PC for hands-on training that lets you "learn by doing." Lessons are presented step by step, and most courses can be completed in less than a year. A Degree takes a little longer, but you can still come away with a four-semester Degree in as little as two years.

What most people like best about distance education is its convenience. Unlike a college class, you have complete control over when, where, and how long you study. There's no time spent traveling to and from class, and your "class schedule" is as flexible as you are. Plus there's no sharing computer time with other students (but all bets are off if your kids discover *Doom*). Exams are given on an open-book basis, which means you can be sure you've mastered the concepts rather than memorized the answers.

The courses are usually designed to provide students with the expertise to enter or advance in computer careers. In fact, thousands of students have used their training to secure promotions, pay raises, and even start whole new lives in computer career fields from Programming to PC Repair. And even if you just want to master the PC for your own enrichment and enjoyment, you can be confident that each training program provides up-to-date and comprehensive instruction.

All the information is presented so that even students who don't know a floppy disk from a soggy pizza can easily absorb every detail. Beginners love distance education because everything is presented in a logical, step-by-step format. There's no confusing "techno-speak," and you get plenty of hands-on experience. And even though courses are easy to understand and complete, they're so informative that even computer experts will learn something (and usually *several* somethings) they didn't know before.

But just because you study at home, on your own schedule, doesn't mean you're alone. ICS, for instance, has a large support staff at their headquarters, including expert instructors who are available to answer questions by toll-free helpline, as well as via **ICS Online**, a virtual campus located within the **America Online®** computer network.

Of course, ICS isn't the only distance education school out there, though it is the largest and most experienced in the world. You should compare ICS with other programs to make sure you get instruction that's right for you. The following chart shows a few of the differences between ICS and its leading competitor:

HOME-SCHOOL CHECKLIST	ICS	Leading Competitor
Students Enrolled	200,000	55,000
Total Courses Available	57	30
Number of Career Computer Courses with Computers	21	13
Number of College Degree Programs	11	None
America Online® Software Included	Yes	No
24-hour Student Helpline	Yes	No
Payment Plan Available	Yes	Yes
Finance Charges on Payment Plan	None (0%)	8%

ICS currently offers Career Diploma Courses in such computer specialties as: Computer Programming in COBOL, Personal Computer Specialist, PC Repair, Desktop Publishing & Design, Computer Programming in BASIC, Professional Secretary with Computer, Computer-Assisted Bookkeeping, and Computer-Assisted Small Business Management. You can also get your High School Diploma through ICS, or choose a Career Diploma course in a non-computer career field, like Electrician, Medical Office Assistant, Professional Locksmithing, TV/VCR Repair, Legal Assistant, and Appliance Repair. You can even earn an Associate in Specialized Business Degree by choosing Applied Computer Science, Accounting, or Business Management. Get an Associate in Specialized Technology Degree in Electrical Engineering Technology or Mechanical Engineering Technology. Every ICS Degree Program offers computer training.

FOR MORE INFORMATION, you can contact ICS directly by calling toll free **1-800-595-5505, Ext. 7193.** Or write to: International Correspondence Schools, Dept. AA5545S, 925 Oak Street, Scranton, PA 18515.

8192X

The school will send you FREE information and a color brochure about the training program you're most interested in. There's no obligation, so contact ICS today!

Windows 95:
Opening Up Performance In A Computer Near You

Say "bye-bye" to DOS, "hasta la vista, baby" to your Autoexec.bat and Config.sys files, and "arrivederci" to your File and Program Managers. Windows 95, Microsoft's long-awaited, new operating system, is expected to finally ship in August. Not only won't you have to learn a new language to run it, but with all its new features and capabilities, you'll be parlaying fluent Windows 95 faster than you can say "adieu Windows 3.1!"

Windows 95 is easy to use, easy to learn, and easy to navigate. It's also still under construction. Whether it turns out to be as successful a product as Microsoft hopes depends a great deal on whether all its promised features will work. New features include:

- a vastly improved graphical user interface (GUI) that replaces the anemic Program and File Managers with a more intuitive shell that resembles a combination of the Macintosh and OS/2 operating environments
- elimination of constricting eight-plus-three file names
- an Undelete function
- a right mouse button that clicks up a context-sensitive help menu and a dandy new shortcuts feature
- Plug-and-Play automatic hardware setup
- an army of convenient file viewers
- faster printing
- Wizards that automate the installation and configuration of hardware add-ons
- an all-in-one E-mail, fax, and voice-message storage center
- slicker 3-D buttons and icons

And that's just the stuff you can see.

Just about every feature you liked in Windows 3.1 has been beefed up, retooled, and revamped. But maybe even more important has been what Microsoft did to the features you hated: the windows that disappeared or were hidden behind others; the frequent and inexplicable crashes; or the tiresome Program Manager to File Manager to Print Manager finger tango needed to perform simple daily operations. All of those have been replaced, too.

The result is a sleeker, streamlined, and more polished Windows operating system versatile enough to be compatible with an estimated 16 million machines and thousands of applications. From its updated typeface to its new name and logo, here's what's waiting for you.

DOS Integration

One of the biggest complaints against Windows is that it isn't a true standalone, multitasking operating system, but rather a shell that straddled MS-DOS and was at the mercy of DOS's quirks, foibles, and instabilities. Windows 95 integrates DOS—at least it integrates it as much as possible without losing backward compatibility. While it's not perfect, it does solve a lot of problems. One of the biggest benefits to users is that should an application crash, you can shut it down without rebooting Windows. Other benefits will be the banishment of Autoexec.bat and Config.sys, the freedom of longer file names, and a 32-bit architecture that will increase stability and performance.

To ensure backward compatibility with a universe of existing DOS-based applications and computers, these .BAT, .SYS, and eight-plus-three file names have not been eliminated, but hidden from view. You'll need as-yet-unreleased, upgraded, 32-bit versions of your favorite applications to take advantage of these new features. As you can imagine, software manufacturers are coding as fast as their programmers can guzzle Coca-Colas.

Click Here To Begin

From the second you install Windows 95, you know something's special. Installation is smooth and a series of gauges and pop-up screens let you know what's going on at all times. After installation, turning on your computer bypasses the DOS C> prompt and launches you right into the new Windows. A Start button sporting the new Windows logo is located at the bottom left of your screen. In case you're wondering what to do next, a "Click here to begin" message eliminates any confusion. Clicking the Start button summons the Start Menu and Taskbar—the first of many new Windows improvement and File Manager replacements.

The Start Menu is a powerful program launcher composed of the following options: Programs, Documents, Settings, Find, Help Topics, and Run.

Programs. During the initial Windows 95 setup, you're asked what five programs you use the most. Those programs are placed in the Program menu. To add another application or file, all you do is drag an icon onto the Start button.

Document. Just like a word processor keeps track of the files you worked on last, the Document menu contains a list of the last 20 documents you opened, no matter what application you opened them in.

Settings. This option provides quick access to your Control Panel, the Printers Folder, and the Font Manager. Changes are just a point and click away.

Find. This slick search utility lets you conduct partial name searches, full text searches, and last modification date searches. You can even rename files.

Help. Whereas Windows 3.1 divided help into three categories: Contents, Search, and Glossary, Windows 95 consolidates them into Contents and Index. Help topics are also shorter, less complicated, and fit in one screen. Another resourceful help feature is "What's This," a new "?" icon that appears in the upper-right corner of the Title bar. Just click once on it and your cursor is converted into a question mark. Then click anywhere else for context-sensitive help on any feature. You also can access help by right-clicking your mouse.

Run works just like it did in Windows 3.1. With Shutdown, one click lets you safely shut down, restart, or log off. (The reason this is not called Exit Windows is because without DOS there's nothing to exit to.)

If an application crashes, you can shut it down without rebooting Windows or closing other applications.

Taskbar

The Taskbar is another big change and improvement over Windows 3.1. Think of it like an intuitive Task Switcher where nothing gets lost or hidden and every application you open or minimize is in one place waiting for your command. Instead of learning four different applications—Program Manager, File Manager, Print Manager, and the Control Panel—one tool does it all.

Gone are the familiar menus at the top of the screen. Minimized programs appear as icons on the Taskbar so you'll never forget which applications are running or inadvertently lose one. A quick animation shows the application shrinking faster than the Wicked Witch of the West, disappearing into an iconized button on the Taskbar. Clicking on the Taskbar icon reverses the animation and instantly reopens the application. Switching from one application to another is a push-button affair.

As you add applications, the buttons automatically scale themselves down to fit on the bar. You can customize the bar, drag it to the top of your screen if you don't like it hanging around the bottom, reconfigure it as a vertical bar, and do just about anything else that you'd like.

Like a weary fighter tired of taking punches on the chin about the inflexibility of the File and Program Managers, Microsoft's code cowboys have adopted Burger King's anthem and, yes, you can have it your way. There's a quick Windows 95 tutorial to help new users, plus help topics designed to help users familiar with Windows 3.1 find the corresponding or new component in Windows 95. Even if you liked Program Manager and File Manager, both applications will be available and can be used the way they were in Windows 3.1.

MyComputer

Microsoft delivers two ways of getting into the guts of your system. Double-clicking the MyComputer icon reveals a quick look at your floppy disks, hard drive, printers, CD-ROM, etc., plus icons for Control Panel and the Printers Folder. Want more information on each item? Just double-click again. Computers connected to a network will be represented by an icon called The Network Neighborhood, which works the same way, except it reveals the resources on a network.

Explorer

Finally, a File Manager replacement that can stand against third-party products like *Norton Desktop* and *PC Tools!* Which is a good thing since no Windows 3.1 replacement front-end packages will work with Windows 95. You'll have to use Explorer at least until your favorite Window shell codes an upgrade. By that time, Microsoft hopes you'll be hooked on Explorer's power and versatility. With Explorer, everything on your system is visible, accessible, and can be manipulated. It lets you view, manage, and launch program and data files. Explorer presents a directory tree a la *XTree* on the left side of your screen, while folders are displayed on the right. To view the contents of a folder, just double-click. Quick viewers let you preview files without having to open a word processor or spreadsheet application. These viewers also let you peak into a file even if you don't have the application that originally created it.

Did you ever wonder why the old Windows used groups in Program Manager, while File Manager used folders? Windows 95 maintains a consistent folder-and-icon view of directories, files, and other objects. Explorer organizes directories and other "container" objects (such as program groups and E-mail folders) as folders on the desktop. Folders can be nested inside other folders. Applications, files, and documents are represented as icons in the folders. Moving objects is as simple as clicking on them and dragging them from place to place. You even can drag frequently used objects directly onto the desktop for easy access.

Plug-and-Play

Anyone who's spent hours wrestling with installing a sound card, fax modem, CD-ROM, or any other hardware add-ons will appreciate the benefits and simplicity of Plug-and-Play. Instead of manually selecting the right driver, system configuration, and system resources, Windows 95 will do the work.

The result: installing an add-on device will be as simple as plugging it in and turning it on, just like a toaster or television. As long as you're installing a Plug-and-Play-capable system, Windows will automatically detect and identify the new device, select and load the proper driver, adjust all system settings, and ensure there are no conflicts with previously installed components. You do nothing! At least

that's the hope and the promise. For thousands of products and vendors, nailing down the much anticipated Plug-and-Play (also known as Plug-and-Pray) aspect of Windows 95 has been very difficult—and may prove to be impossible, at least for now. To date, it has caused the product to be delayed three times.

Wizards & Shortcuts

Microsoft *Word* users already know the benefits of Wizards, those handy guides that walk you step by step through complicated procedures by asking you a series of questions. Wizards will be used in the Windows 95 setup and will be available to add a printer or modem, install or remove applications, and create a dandy new feature called shortcuts.

Shortcuts are, well, shortcuts that save you time and hard disk space. You can create a shortcut to any object such as a file, program, network folder, Control Panel tool, disk drive, etc. A shortcut actually points Windows 95 back to your original .EXE file. Represented by a small jump arrow, it eliminates the need to create duplicate .EXE files. You also can create shortcuts using the new and improved right-mouse menus.

Info Center

The Info Center helps you access and organize all forms of online information. It is capable of reading and sending E-mail to users on the Internet and online services like America Online and CompuServe. It also can store, send, and receive faxes, voice mail, and other remote messages.

Recycle Bin

How many times have you deleted, renamed, moved, or copied a file that you didn't intend to? For these situations, Windows 95 offers two undo solutions. The Recycle Bin lets you recover files you have "thrown away" simply by removing them from the bin. In addition, a multilevel Undo command on the Edit menu lets you "undo" several layers of "oops!"

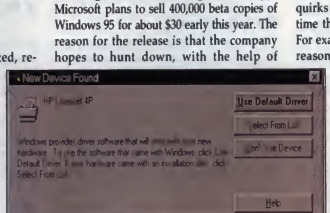
Printer Control

One of the weakest components of Windows 3.1 was the slow and clunky Print Manager. In Windows 95, both the Print Manager and Printers Control Panel have been integrated into the Printers Folder, a one-stop shopping center for printer management and configuration. Unlike Print Manager, the Windows 95 spooler passes data to your printer only when it's ready to receive it. The result will be smoother background printing, faster "return to application" time, support for 800 different printer modes (vs. more than 300 in Windows 3.1), and improved WYSIWYG (an acronym for "What You See Is What You Get") support between images on-screen and the final printout.

With Windows 95's Explorer feature, everything on your system is visible and accessible.

Bug Hunt

While the final shipping version of Windows 95 is still several months away, you still might be able to snag a beta copy. Microsoft plans to sell 400,000 beta copies of Windows 95 for about $30 early this year. The reason for the release is that the company hopes to hunt down, with the help of Windows users, any last-minute bugs. When the pre-release product is ready to ship, Microsoft will announce an 800 number and special E-mail address. For more information about Windows 95, contact Microsoft on CompuServe (**go winnews**), America Online (Keyword: **winnews**), and Prodigy (Jump: **winnews**). News also can be obtained at the Internet address **ftp.microsoft.com/peropsys/win_news** and on the World Wide Web at **http://www.microsoft.com**.



The new Plug-and-Play standard in Windows 95 promises to make hardware installation easy.

When the final version is released, expect the upgrade to sell for a street price of less than $100. The company, however, has yet to announce a suggested retail price. Microsoft says Windows 95 will work with a minimum system of a 386 microprocessor with 4MB of random-access memory (RAM). However, optimum performance will be with 486 microprocessors with 8MB of RAM. The bottom line is, if you're using Windows 3.1 now you won't have to do anything special to swap it for Windows 95.

Because of the company's desire to produce the premiere operating system well into the next century, Windows 95 is like a gateway, with one hand reached out to pull those still using the 16-bit applications of the past into the 32-bit present, while the other hand points power users towards a brighter, more integrated, multitasking future. Usually, when a product tries to be all things to all people it fails. Make no mistake, the beta version of Windows 95 has some quirks that still must be ironed out by the time the product is released later this year. For example, there seems to be no rhyme or reason why some actions required single mouse-clicks while others require two. And navigating through the system sometimes hits a road block. But even so, Windows 95 is a remarkable piece of technology, one that is guaranteed to rumble through the computer industry as vendors gear up for the next feverish round of new product explosions. Stay tuned. ●

by Michael Cahlin

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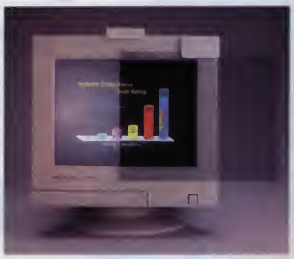

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The Latest Picture!

All The Details On New Monitor Trends

While new chips and their clock speeds make news in personal computer circles, monitor technology seems to remain the same. Or does it? In fact, most manufacturers constantly search for ways to improve the quality of the screens we look at, while reducing overall size and price.

The newest in monitors can be summed up by the following phrases: Plug-and-Play, improved quality, flat-square, and digital controls. Let's examine what each one means.

Plug-and-Play

Perhaps the most common reason people have for putting off purchasing their first computer is that computers seem too complicated. Manufacturers have taken note of the complaints. In order to make adding anything, such as a printer or a monitor, to new computers easier, a new standard has been developed called Plug-and-Play. Plug-and-Play will most likely become popular this year with the release of Microsoft Corp.'s Windows 95, currently scheduled for an August release, which will include a Plug-and-Play option.

The Plug-and-Play standard was developed through a collaborative effort by Microsoft, Compaq, Intel, and Phoenix. Many other companies, including IBM, have agreed with the standard. The goal is to let people slide in a new expansion card, for example, and have it immediately work. The same standard would apply to any other peripherals that can attach to your computer, such as monitors, printers, and CD-ROM drives. Someday, all peripherals may be Plug-and-Play.

The Video Electronic Standard Association (VESA) has designated two versions of Plug-and-Play: **DDC1** and **DDC2**. DDC stands for Display Data Channel. DDC1 is for one-way communication, where, for instance, a monitor tells your computer, "I'm a 15-inch Super VGA multiscan monitor with a refresh rate of 72Hz, non-interlaced." If you don't understand any of that, it's alright, because the monitor is simply telling your computer its capabilities. The computer then sets itself to work with that monitor in an optimum mode. Without Plug-and-Play, you would need to set your software (such as Microsoft Windows) to work with the monitor.

DDC2 is for two-way communication. Not only can your monitor, cards, and peripherals communicate basic configuration information, but the system can "talk back" to the devices at times when you want to change screen resolution or obtain monitor information faster.

NEC Technologies Inc.'s new Multisync *XP* series monitors, for example, are DDC2-compatible. Not only can the monitors tell your computer their capabilities, but when you want to change the size of the image field, its centering, or a number of other things, you can do so with a mouse and NEC's *Image Manager* software. Your computer then talks back to the monitor and changes its digital settings. Thus, people can adjust their monitor by software rather than by monitor buttons.

Presently (pre-Plug and Play), when you install a monitor, you may have to do nothing more than plug in the power, connect the monitor to your computer's video card by cable, and turn everything on. If you are installing a high-end monitor, you may have to add a new video card first. That means you have to open your computer's case, find the expansion slots (the long, narrow openings aligned in rows on your computer's main circuit board, also known as a **motherboard**), and delicately wedge the board in and screw it down.

After the card is installed, you must go into Microsoft Windows (if you're using Windows) and choose from a large list of graphics cards. Choose the resolution and the number of colors you want from the Main group's Control Panel,

then reboot. Plug-and-Play should make this process easier.

For the standard to work well, there must be common software for all peripherals that recognizes when new hardware is installed. Windows 95, though still several months off, should do this. Even though Plug-and-Play isn't fully implemented yet, look now for computers, monitors, and peripherals labeled "Plug-and-Play ready."

Improved Quality

A monitor is often not included with a new computer. That's because monitors vary in features to the extent that you must choose which one you want. Today's monitors tend to have higher resolution, higher refresh rates, lower dot pitches, and better scan rates for the same or lower prices than those of even a year ago. They are also non-interlaced; this means higher quality. But to understand what you are buying, you need to understand the terms.

Resolution

Resolution—the sharpness of text and graphics—is a critical issue because of its impact on readability and eye strain.

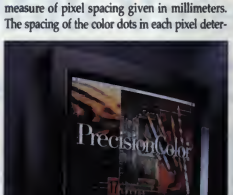
A color screen is composed of pixels, small units each composed of three tiny dots of red, green, and blue. The more pixels on a screen, the sharper the resolution. Resolution is expressed as the number of pixels across the screen by the number up and down.

Hence, what is known as VGA (Video Graphics Array) brings 640 pixels across your screen by 400 up and down, written as "640 x 400." Most people use VGA mode because that is what most computers are set at. Higher resolution is available by going into Microsoft Windows' Control Panel and selecting "800 x 600" or "1024 x 768." These two higher modes are often referred to as Super VGA. Some monitors can even go as high as "1280 x 1024" or "1600 x 1200."

Salespeople often fail to mention that if you choose a higher resolution, the image on your screen shrinks. With more pixels running horizontally and vertically on the same size screen, each image fits into a smaller space. Many people won't like the higher resolution modes on a 14- or 15-inch screen because the images are too small. If you're spending extra money for high resolution on a standard-size screen, you may actually never use the higher resolutions. A good rule of thumb is not to go beyond 800 x 600 on a 14-inch monitor and 1024 x 768 on 17-inch model. If you're buying a 17-inch or larger screen to use the higher resolutions, you may need a video accelerator card to run it well. (More on this later.)

Dot Pitch

Dot pitch, which also affects resolution, is a measure of pixel spacing given in millimeters. The spacing of the color dots in each pixel determines the pitch. The *smaller* the pitch, the *sharper* the on-screen image. A monitor with a .28 pitch, therefore, is sharper than one with a .39 pitch. Naturally, you'll spend more for a smaller-pitched monitor. Most stores offer an array of monitors at a good pitch, which is about .28.



The Radius PrecisionColor Display/17 is well-suited to the needs of graphic designers.

Refresh Rate

The **refresh rate**, also called the vertical frequency, indicates how often an entire screenful of lines is drawn from top to bottom. With a slow refresh rate, the on-screen image flickers because it isn't rewritten quickly enough to fool the eye into perceiving a steady image. You want a high refresh rate—70 hertz (Hz) or more. The refresh rate is controlled by your video card, not the monitor, though the monitor has to have the ability to work with a particular refresh rate.

The refresh rate typically drops with larger screens or higher resolutions. Thus, you need a video card that can keep the refresh rate steady as you use larger, sharper monitors.

Multiscan

Multiscan, also known as autoscan and trademarked as "MultiSync" by NEC, refers to monitors that can be fed a range of signals from any number of video cards, giving varying refresh rates and more. Most monitors sold are multiscan.

Interlaced & Non-Interlaced

Video images come from an electron gun that "shoots" one line at a time. It happens so fast that an image seems whole and steady.

Interlacing is a technique that draws the image in two very fast passes. The first pass draws every other line, and the second fills in the gaps. Non-interlaced video draws the image in one pass, from top to bottom. This method is preferable because it's less likely to give flicker, which can cause headaches and dizziness in some people.

Interlacing and non-interlacing are controlled by your video card, not the monitor. VGA and Super VGA, as defined, are non-interlaced, so if a monitor supports either mode, it will be running non-interlaced. Some stores may mislead, however. Their more expensive monitors are marked "non-interlaced," leading people to believe that the less expensive monitors are interlaced. They can't be if they're delivering VGA or Super VGA. Keep in mind that almost all monitors sold support non-interlaced.

Better Video Card

If you buy a particularly large monitor (17-inch or larger) or one designed for very high resolutions (1024 x 768 resolution or higher), you may need to purchase a new video card, also known as a graphic board or video accelerator card.

While standard video cards in most new computers will adequately run large screens in standard VGA mode, higher resolution modes may show flicker on the screen. Video accelerator cards, in part, offer fast refresh rates. The nature and abilities of graphic cards are explained further in a separate article in this issue.

Digital Controls

Digital control is the most popular new feature on monitors. Digital control buttons, typically on the front below the screen, allow the user to control the image area to a minute degree.

Less expensive monitors have analog controls that control fewer aspects of the image. Jason Sparks, executive vice president of marketing and sales for Orchestra Multisystems, says nearby magnetic fields, such as those generated by audio speakers, may interfere with monitors featuring analog controls.

"In such cases, you might have to send your monitor back to the manufacturer for adjustment," Sparks says. "With digital controls, you can control virtually everything. You can avoid factory adjustments."

On Orchestra's 17-inch Tuba monitor (the company's monitors are named after orchestra instruments), one digital control is marked "degauss," which demagnetizes the picture tube, eliminating magnetic field interference. Other buttons, accessed by a door on the monitor's front, are marked for vertical size and position, and horizontal size and phase. A reset button restores all the controls to their factory setting.

"Another great thing about digital controls," says Pam Himmel, marketing manager at NEC, "is that they remain true from one resolution setting to another. The controls have memory."

NEC's digital controls have similar abilities to Orchestra's. Overall, digital controls are similar from one monitor line to another. NEC also offers, as on its MultiSync XE17, an on-screen menu to assist adjustments.

Low Magnetic Fields

Alternating currents create low frequency magnetic fields in pulses of 60 cycles per second. How much magnetism is "safe" has been in debate, as has the data on a magnetic field's possible dangers. The Swedish government first created standards for what was permitted in monitors sold in its country. Later those standards were strengthened and defined as the "MPR-II standards." Monitors that meet or exceed MPR-II standards are desirable.

A year ago, some monitors were labelled VLMF (Very Low Magnetic Field). Most monitors now sold are VLMF, whether they are labeled or not, because they meet the MPR-II standards.

Flat-square Screens

Convex screens with slightly rounded corners are giving way to "flat-square" screens that offer images that appear square and flat. The screens actually are slightly convex. Absolutely flat screens were manufactured a few years ago by Zenith, but they proved unpopular because the glass's flatness actually made the image appear concave. Hence, a slight convexing gives the appearance of flat.

Energy Star

The Environmental Protection Agency (EPA) estimates that computers and peripherals use 5% of the power used commercially today. That figure could rise to 10% by the end of the decade if current trends continue. Part of the reason for so much power consumption is that 30% to 40% of all computers run continually. With this in mind, the EPA started awarding an Energy Star designation to computers and monitors that consume less than 30 watts of power each or that power down into a low-energy sleep mode when not in use. By using less power, these monitors save in power costs over the long run. IBM, Samsung, Samtron, and others offer Energy Star monitors.

Tatung's Audio 17 monitor features built-in speakers.

Built-in Speakers

With the advent of multimedia computers—and hence the need for stereo speakers—some manufacturers are adding speakers to the sides of their monitors, which saves desk space and makes for a good location for the sound. Some users, however, may want more flexibility in placing their speakers—or have larger speakers—and not want the speakers attached. Thus, speaker placement is something to consider before shopping.

Warranties

A favorable new trend for consumers is longer warranties. If anything will burn out in a computer system, it's most likely the monitor. Inexpensive monitors, in fact, tend to diminish noticeably in brightness, or go out altogether, after about a year—long after the warranty has expired. Thus, monitors with warranties of two or three years are most likely to be made of the best components—and are more apt to last beyond their warranties.

Monitors To Consider

The following is a small listing of monitors in the marketplace.

NEC is the sales leader in monitors, mainly because the company constantly pushes the standards and quality. All the company's monitors come with three-year warranties. Each MultiSync monitor is Energy Star compliant. The MultiSync XE line is Plug-and-Play ready, DDC1-compatible.

Packard Bell, which is presently number two in sales for computers, is known for value—standard-size monitors with many features at a good price. Packard Bell's new monitor, the 1511SL, has speakers on the sides, digital controls, sharp resolution, and sells for less than $400.

Orchestra has perhaps the least expensive 17-inch monitor on the market at $469 retail. It has a .42 dot pitch. The 17-inch Tuba has a .26 dot pitch and lists for $669, which is still about $200 to $400 less than most other 17-inch monitors. Orchestra's French Horn II, the company's top-of-the-line 15-inch monitor, lists for $499.

Samtron's 14-inch SVGA monitor has a .28 dot pitch, is Energy Star compliant, and sells for less than $300. Samtron monitors have a three-year parts, two-year labor warranty.

Radius monitors are particularly oriented toward graphic designers whose needs require a lot from computers and screens. Because most graphic designers use Apple Macintosh computers, Radius developed the fastest Macintosh video accelerator card. Radius also created monitors, for Mac and Windows environments, that meet extremely tight color purity standards, to match PMS colors that designers use. The Radius PrecisionColor Display/17, the company's most popular monitor, competes with the Sony MultiScan 17se. Both sell for about $1,050.

Tatung also offers high-performance large screen monitors. Its 17-inch CM17MKR retails for $999, and its 20-inch CM20MKR lists at $1,799. Tatung's Audio 17 is a 17-inch, flat-square screen monitor with built-in speakers (for multimedia use), Plug-and-Play compatibility, DDC1, and MPR-II and Energy Star compliance. It lists for $850.

Like everything else in the personal computer industry, whatever is top-of-the-line today will seem outdated not far down the road. Rather than worry about keeping up, buy quality now. It should still provide good service in five or more years. ●

by Christopher Meeks

Full Speed Ahead With Video Accelerator Cards

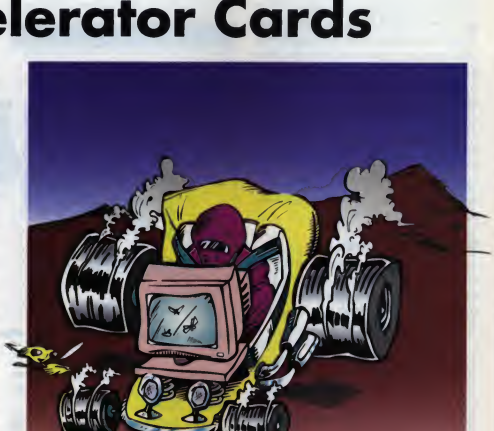
In the hundreds of acres of this country's computer showrooms, knowledgeable and confused buyers alike are asking good basic questions. "How large is the hard disk?" "Does this computer have eight megabytes of RAM?"

Almost no one questions, however, what kind of video graphics a computer offers. Few people know to ask. They might see a computer advertised as having "1MB Local Bus Video." Salespeople may explain that as, "That's something good to have." That's much like going to McDonald's and asking what's in a Big Mac. To be told that it has a "secret sauce" and that "it's good" wouldn't do it for many people.

Thus, an understanding of graphics boards, also known as video accelerator cards, can not only help people buy new computers, but help current owners buy a new card for greater performance.

When Microsoft Windows became popular, computers suddenly had to deal with a graphical interface. In other words, your computer did not just have to display words, but it had to deal with little pictures called icons. To get those pictures, each Windows screen has to be created pixel by pixel (i.e. dot by dot). Every word, picture, color, and shade has to be created a pixel at a time.

A graphical interface, therefore, requires a lot of information, and the amount of information increases proportionally with resolution and the number of colors displayed. Even if you have a fast microprocessor chip (such as a 486 or Pentium chip), your screen may respond sluggishly if it doesn't have a fast enough video card or expansion slot.



Ordinary vs. Accelerator Video Cards

The quality of monitor image is most dependent on the video card, much in the same way that the quality of sound on your stereo is dependent on the receiver. The sound quality of a cheap receiver won't be improved with $2,000 speakers.

When personal computers first sent information to monitors, a video adapter card relayed that information. If you had a monochrome monitor, you also had a monochrome video card that fit in one of the computer's **expansion slots**. A color board let you use a color monitor. (Expansion slots are the long, narrow openings aligned in rows on your computer's main circuit board, also known as a **motherboard**. Expansion slots allow you to add boards to give your computer new capabilities.)

Early color monitors had less resolution than monochrome monitors. Words and images were fuzzier in color than in monochrome, but color resolution has since improved. A standard called VGA (which stands for "video graphics array") called for 640 horizontal pixels by 480 vertical pixels to be on the screen at once in up to 16 different colors. SuperVGA handles higher resolutions (800 x 600 or higher) and many more colors. The better the resolution and the more colors you have, the more your computer has to do.

With ordinary video cards, your computer's main processor has to control the color and shade of every dot on the screen. When you

scroll or otherwise change the screen, the processor must send all new information to the dots. Today's video cards take much of the information that your microprocessor would otherwise process and prepare that information, freeing up your microprocessor for other tasks. This speeds things along, hence the name **video accelerator card**. A faster video card gets information to your screen faster.

Microsoft Windows users know that clicking on an icon often produces a picture of an hour glass. That picture is telling you to wait a moment while a program or file is being prepared. Ordinary or slow video cards make that hour glass picture stay on longer. If you are finding you are waiting too often for the hour glass, a faster accelerator card may be for you.

Accelerator cards are often able to operate faster because they process more bits of information at a time. A 32-bit video card takes 32 bits of information at once, while a 64-bit video card doubles that. Note that the expansion slot itself may be offering the information at a different rate. More on that later.

What Else Cards Do

The video card processes more than just the rate at which graphics can be drawn on your screen. The video card—not the monitor—also controls **resolution, refresh rate, horizontal scan rate,** and **interlacing**.

Resolution—the sharpness of your on-screen image—is dependent on the number of pixels displayed at once.

The refresh rate, also known as the vertical frequency, indicates how often an entire screenful of lines is drawn, from top to bottom. With a slow refresh rate, the on-screen image flickers because it isn't rewritten quickly enough to fool the eye that there's a steady image. While the refresh rate is a function of the video card, a monitor has to have the ability to deliver a high refresh rate.

With most cards, as you move to higher resolution, more colors, or larger screen size, the refresh rate decreases. Only the more expensive cards keep delivering high refresh rates. You'll want a card that delivers at least 72 hertz (Hz) at every resolution you use.

The horizontal scan rate is the speed at which one line is drawn across the width of the screen. The greater the vertical frequency, the greater the horizontal scan rate has to be. Horizontal scan rates, expressed in kilohertz, are typically not mentioned by advertisers or salespeople.

Most monitors today can operate in a range of horizontal and vertical frequencies so they will complement a variety of video cards operating at different frequencies. Such a feature is called "autoscan" or "multiscan" (and trademarked as "MultiSync" by NEC Corp.).

Interlacing refers to how a screen image is created. Video images are drawn one line at a time and so quickly that the image seems whole and steady. Interlacing is a technique that draws the image on-screen in two very fast passes, every other line first. Non-interlaced video draws the image in one pass, from top to bottom. Non-interlaced, used in almost all current cards and monitors, is preferable because it's flickerless.

If you're buying a new monitor for an old computer, you may have to buy a new video card at the same time, because the old video card may not be able to deliver what you need. Although high-end video cards are now standard in new computers, if you want particularly high resolution, or if you're getting a specialized monitor, you need a new video card.

Video Card Memory

Video accelerator cards speed up image delivery by processing more bits at a time and by using memory chips to hold information temporarily.

Video card memory comes in two forms: VRAM and DRAM (pronounced "vee ram" and "dee ram"). The acronyms stand for **video random-access memory** and **dynamic random-access memory**. VRAM costs more than DRAM, so you'll find most cards have DRAM. VRAM, however, has more zip to it and makes for a faster card.

The amount of video memory you need on a video card depends on resolution and color depth. Most users tend to use whatever the computer (and Microsoft Windows) comes set at, which usually is 640 x 480 with 256 colors. The minimum amount of memory for that would be 308 kilobytes (KB), or roughly one-third of a megabyte (MB). A very high resolution of 1064 x 768 would require two-thirds of a megabyte. Thus cards that come with 1MB of memory would do for both these instances.

Diamond Multimedia's Stealth 64 card offers 64-bit technology and 2MB of VRAM.

Of Bits And Color

Salespeople can throw off even the most knowledgeable person with the line, "It does 24-bit true color." Say what?

In this article, "bits" have been used in the context of bits of information. If an image on-screen is 1-bit, that means it is monochrome. For instance, that bit can turn the pixel on (white) or off (black). If the monitor is 2-bit, then two bits of information per pixel can be sent, giving you four possible combinations: on/on (white); off/off (black); on/off (one shade of gray); off/on (another shade of gray).

Grayscale monitors actually can take up to eight bits of information per pixel, giving the user 256 possible combinations, meaning you have 256 shades of gray. That is about all the eye can distinguish anyway.

On color monitors, each pixel is actually composed of three very small dots arranged in a triad of red, green, and blue. If you give each one of those dots up to eight bits of information, you would need 24 bits per pixel (eight

times three equals 24). With 256 possible shades per each of the three colors, you have the incredible potential of 16.7 million shades on your screen (256 to the third power). With so many shades, your monitor is said to offer "true color"—the shades of real life.

Because 24-bit color demands a lot from a computer and video card—to minimal advantage for most users—most people would be satisfied running 8-bit color, giving them 256 shades of color. Those who want 24-bit color tend to be professionals in the graphic design business, where a slight variation on a shade of blue, for instance, can be important. They are also the ones who can afford to buy video cards with 4MB of memory to run all those shades in high resolution.

Expansion Slots

So far you understand that your computer processes and delivers video information through its video circuits. This information can be slowed down in the computer's expansion slots, where your video board is often located.

The circuits of an expansion slot are referred to as its **bus**. These days, there are three types of buses. Several bus types exist because the original standard bus, known as an ISA bus or ISA slot (ISA stands for Industry Standard Architecture), could not deliver video information fast enough. In its place came **local bus**, which made for higher-speed display. Hence, "local bus video" means that Windows and other graphics will be delivered faster than by a card in an ISA slot.

Local bus has become a generic term, but there are now two specific standards for it. One is VESA's **VL-Bus** (also referred to as a **VESA slot**), and the newest standard is Intel's **PCI** (a **PCI slot**). PCI stands for Peripheral Component Interconnect and is not to be confused with laptop computers' PCMCIA sockets which take credit card-sized cards. PCI seems to be the leading contender for most popular bus standard in the near future.

There are also two other, less popular buses: EISA, an enhancement of ISA, and IBM's microchannel bus (MCA). If you have either of these two buses, you have fewer cards to choose from. Read your computer's manual to identify which bus it uses.

When buying an accelerator card, it is paramount to know what kind of bus your computer has. Even if your computer has local bus video, the computer may have only ISA expansion slots (because the local bus video is soldered onto the motherboard). If you have only ISA slots, you need to get an ISA video accelerator.

You'll note while shopping around that some cards boast 32-bit or 64-bit capabilities, which refer to the video chip, not the kind of slot the card uses. Expansion slots themselves are 8-, 16-, or 32-bit. All these numbers refer to how information is processed or transferred—

To make adding expansion boards easier, some manufacturers are already touting "Plug-and-Play ready."

8 bits at a time, 16 bits at a time, and so forth. The higher the number, the faster the speed.

Plug-and-Play

To make adding expansion boards easier, some manufacturers are already touting "Plug-and-Play ready." Plug-and-Play is likely to become popular in 1995 once the new version of Windows, offering Plug-and-Play as an option, is out.

Adding a card to your computer can be trying. If your computer is not Plug-and-Play, you must remove the screws from your computer's case, remove the top, and locate your expansion slots. You choose a free slot and remove the screw from the little metal piece that covers the opening to the outside. Here's the hard part: if your card has "jumpers" that affect the card's IRQ interrupt settings and COM addresses, you may have to do some finagling. The manuals will explain. One hopes.

Yes, expansion cards can seem needlessly complex. The complexity occurs because anything new added to your computer may have conflicts with what is already there. Such problems cause many novice and average computer users endless frustration. In fact, some manufacturers find that up to 25% of their boards are returned, not because they don't work, but because customers can't install them properly.

Microsoft, Compaq, Intel, and Phoenix banded together to create the Plug-and-Play standard. Many other companies, including IBM, have agreed with the standard. The goal is to be able to slide in a new card and have it immediately work. If you get a new monitor, you plug it in, and it will work—same with printers, CD-ROM drives, and anything else that can attach to your computer. Windows 95 should provide the software to make this concept work.

At Computer Stores

Diamond Multimedia Systems (408/736-2000) is the sales leader in video accelerator cards. The company's Stealth 64 uses 64-bit graphics technology, has 2MB of VRAM (upgradable to 4MB), and has versions for PCI and VL-Bus. It retails for $399. A DRAM version, 2MB, lists at $249.

Diamond's Stealth 24, a 24-bit accelerator, has plenty of power for most people and is more affordable at $189 retail, with 1MB of DRAM.

Orchestra Multisystems' (714/891-3861) Accelerando card with 1MB of memory fits VESA slots and retails for $189. Orchestra's PCI-bus accelerator, the Allegro PCI also retails for $189. For $10 more, Orchestra's Presto PCI offers 64-bit technology with 2MB of DRAM.

A few manufacturers are touting an S3 triple processor, meaning their cards employ three 64-bit chips from S3 Inc., one chip for each of the three main colors, to provide a 192-bit data stream. Again, this would benefit people needing true color in a high resolution. The Maxmedia CX/Pro from UMAX Technologies (800/562-0311) is one example with a list price of $999. The CX/Pro offers a high refresh rate of up to 120Hz.

Now you can march into a computer store, know that "1MB local bus video" is indeed something you want, and start sorting out which computer or video card you will get. ●

by Christopher Meeks

Desktops Go Portable

How To Safely Move Your Computer

You've survived the move without too many casualties: a few broken dishes, a dented lava lamp, and you still can't locate your toothbrush. Your computer seems to have survived the trip intact, until, of course, you plug it in and try to use it. It can't find that report you've been working so hard on . . . it can't find your favorite software game . . . maybe it can't even locate DOS, your system's foundation software.

Desktop computers were not meant to be portable. If they were, there would be little market for laptop computers.

So what happens when you need to move your desktop computer? No matter if you plan to move it across country or just across the room, the task is going to require some "TLC." You're not going to pack up a $1,500 to $3,000 piece of equipment like you would a coffee maker.

The Death Of Your Data

So what happened? You didn't drop your computer and you tried to avoid all the potholes in the road.

Walter McFashion, assistant manager at Packard Bell Service and Support, says it's not that easy. It's not a matter of dropping your computer, because even if you were to let it hit the floor, it would probably stay intact, as it's pretty durable.

Unless you take some precautions, you run the risk of crashing your hard drive and losing all the data that you have on your system.

"You have this piece of hardware. Most people think it is pretty durable. They don't have any problems with it and they really don't know what's inside and the workings of its parts," McFashion says. "To them it is one big box that they can move from here to there and have no problems."

Don't think it can't happen to you. McFashion says it's a semi-common problem. In fact, the Packard Bell support line receives about one call a day from someone who has lost data after moving their computer.

Be Prepared

The first thing you should do before you even turn off your computer for the last time is to **back up**, or make a copy of your data, McFashion says.

If you still have the installation diskettes for your software programs and DOS, great. All you need to do is make backup copies of important files you have created to diskettes.

Otherwise, you may want to create a full backup of all the data on your hard drive. You can do this through the BACKUP and RESTORE commands found in DOS versions before 6.0 and the *Microsoft Backup* utility in DOS 6.0 and later. This will copy all the files or only the files you select to diskettes, but, it may take quite a few diskettes to back up a 100 **megabyte** (MB) hard drive on 1.44MB diskettes. (One megabyte is equal to about one million **bytes**. A byte is how much data it takes to make one alphanumeric character.) Or you can purchase a **tape backup system**, complete with tape drive and system software, for a few hundred dollars to copy all of your files on a tape cartridge that resembles an audio cassette tape.

Is your computer more than four or five years old? If it is, Dave Webb, spokesperson for the hard drive manufacturer Seagate, says you may have to **park the heads** on your **hard drive** (your computer's permanent data storage device).

The inside of your computer's hard drive looks a lot like a record player. **Read/write heads** that look like record arms are positioned above **platters** that look like records (on which your data is stored). The read/write heads float on a cushion of air or other inert gas, very close to the hard drive platters. When the heads are finished reading and writing data to the platters, they return to a safe location to **park**, or rest. They can't just park anywhere on the platters or they may damage data stored there.

Older hard drives, including **MFM** (**Modified Frequency Modulation**) and **RLL** (**Run Length Limited**), require that the user manually park these heads through the DOS PARK command when they are ready to power off the computer. More recent hard drives made for today's computers, such as **IDE** (**Integrated Drive Electronics**), **SCSI** (**Small Computer System Interface**), and **ESDI** (**Enhanced Small Device Interface**), don't require that you park the heads. Instead, these drives park themselves.

So if your computer is more than five years old, Webb says you may want to check to see what type of hard drive it uses.

Taking It Apart

Before you proceed, make sure you've turned your computer off before disconnecting cables and unplugging the system. You will want to detach as many peripheral devices (such as your monitor, printer, keyboard, and mouse) from your system unit as possible to prevent any damage to any of the connectors, Webb says. And, McFashion adds, be sure not to use excessive force or attempt to pry any connections loose.

It might also be a good idea to label any cables, wires, etc., if you aren't sure you will be able to match them up again. Place tags on the ports and plugs to identify them. For example, match port number one with cable number one and so on, and you shouldn't have any problems. McFashion says this can help avoid common mistakes, such as plugging your keyboard cable into your mouse port. If you're still in doubt, check the back of your system unit for any text or diagrams that may help you out.

It's not necessary for you to remove **expansion cards** from inside the computer

when you move it. (Expansion cards are circuit boards that fit into slots on the main circuit board and are used to add additional capabilities to your computer.) If, however, you feel this is necessary, McFashion warns you should make sure the computer is first turned off and take precautions against electro-static discharge. Periodically ground yourself by touching bare metal inside or outside the case so you don't zap any of the important components. After removing the card or cards, handle them by the edges and place them in an anti-static bag.

Packing It In

If you're taking your computer on a little trip, now you should be ready to pack it up for the move. The best packing receptacle for moving your computer is the original box and packing materials it came in. However, not all of us necessarily have the room or forethought to keep these boxes.

That's not a problem. McFashion says to try to find a box for your system unit that is about two inches larger on each side for whatever you are trying to pack. Place several inches of suitable insulating material, such as styrofoam popcorn or crumpled newspapers. Next, place your system unit into a large plastic bag. This will keep the packing material from getting into your disk drives, fans, keys, etc. Place the computer in the center of the box, along with the keyboard or mouse (each in their own baggies), if room. Fill up the rest of the box with more packing materials and seal it. Then follow the same steps for your monitor.

Ease On Down The Road

Your computer should now be cushioned to handle any bumps or potholes in the road. If your computer is packed securely, McFashion says it may even be able to handle being dropped—if the fall is not too great. The computer monitor, on the other hand, may not make it. Although it may not appear to be broken on the outside, the fall may cause misalignment inside, resulting in a blurred or distorted image when you try to use it again.

Extreme heat (with the exception of fire, of course) or cold shouldn't affect your computer if you leave it out overnight in a moving van. Webb says a Seagate hard drive, for example, can take temperatures of -30 to -40 degrees Fahrenheit and more than 150 degrees Fahrenheit. Humidity also should not be much of a factor, McFashion says, especially if you packed your computer in a plastic bag. However, if it does seem to have affected your computer, give your computer a few minutes to warm up before you start using it again.

A Short Trip

If you're just moving your computer across your desk, you won't have to worry about most of these packing and transportation concerns. Nevertheless, you should keep in mind that you should never, ever move your computer while it is running; not even to nudge it a few inches across your desk.

"We've had several customers we've dealt with who have moved their computer from one spot on their desk to another while it was on," McFashion says. "When they set the computer down . . . boom. It skips and their hard drive crashes."

If the read/write head is recording data on the hard drive platter, that data could be lost. Or, Webb says, the read/write head might come crashing onto the surface of the platter, destroying the data saved there and the read/write head itself. If you picture a 747 flying at 600 miles per hour, six inches above the ground, and then imagine it crashing into the surface, McFashion says, you'll have a good idea about what goes on inside during a head crash.

Sure, your portable, laptop computer may be able to stand a few jars and jiggles while it is operating, but your desktop computer cannot. Part of the reason is that portable computer drives have built-in durability features, Webb says. Hard drives made for portable computers may be able to take up to 100Gs of impact, while the hard drive in your desktop computer may only be able to take about 2Gs, which is about the amount you may create by moving your computer just a couple of inches while it is operating. (G here represents a unit of force equal to the force exerted by gravity on body at rest.)

When moving your PC, it's a good idea to label the cables and the ports they plug into on the back of your computer and monitor with letters or numerals.

Unpacking

Once you've reached your destination and/or have your office rearranged the way you want it, you'll be ready to unpack and reconnect your computer.

Remember when you set up your computer that like any electronic device, the computer generates heat. Therefore, McFashion suggests that you make sure there is enough air space in the back of the system unit for the fan to circulate air.

If you've taken all the proper precautions, most likely your computer will start up without a hitch.

If, however, anything appears to be amiss, take a minute to double-check the computer's setup.

- Open the case to visually check that none of the expansion cards have come loose (that is if you didn't remove them prior to the move).
- Look to make sure there are no disconnected wires or wide, flat ribbon cables inside the computer.
- Make sure you've plugged all the cables into the correct plugs and ports.

If you find the insides of your computer in a disarray, you can either try to reconnect disconnected wires or cables yourself using your system manual, or you can call the computer manufacturer's technical support number for assistance. ●

by Cindy Krushenisky

Meet Microsoft Bob

"Why can't a woman be more like a man?"

—My Fair Lady

The folks at Microsoft Corp. are betting the answer to the '90s version of that Rex Harrison-sung question, "Why can't a computer be more like a person," is Bob. That's right . . . Bob, an engaging new social interface for Windows.

Bob is based on the research of two Stanford University professors, Drs. Clifford Nass and Byron Reeves, whose theories are a novel blend of social psychology and computer science. Their concept is twofold. The first part says that we respond to our computers like we would other people—screaming at them when "they" make a mistake, praising and talking sweetly to them when they do what they're supposed to. The second part of the concept is that we'd enjoy working on a computer more if we had an expert friend and tutor by our side.

Which is exactly what Bob does with the help of a menagerie of supportive animated characters called guides. Each guide embodies a strong character type from friendly to aggressive, helpful to annoying. How people perceive each character depends on what the person is like. (For more about this, see the sidebar, "What Bob Says About You.")

"The biggest question we asked ourselves was, would people accept this type of interaction between a computer and an animation," says Dr. Byron Reeves. "We were a little taken back by how much people did like it."

These virtual PC pals literally watch over you and teach you how to use a collection of eight programs: checkbook, letter writer, address book, household manager, calendar, E-mail, financial guide, and a kid's geography quiz game.

"Instead of working on a computer, Bob is more like working with another person," explains Microsoft's Group Product Manager David Thatcher.

Three years in the making, Bob was Microsoft's Manhattan Project, complete with the code-name Utopia. "Our desire was to create software that was fundamentally different, even enjoyable, for everyone in the home to get the basics done," says Thatcher.

The result? Gone are Windows pull-down menus, arcane error messages, and dialog boxes. In their stead are a few icons and a gang of expert animated guides that speak to you in cartoon word balloons.

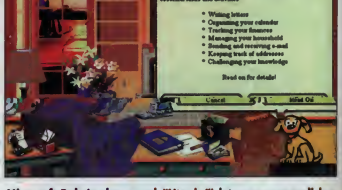
From Java, the caffeine-guzzling dragon, to Orby, the animated globe, each personal guide is active and intelligent, offering help when and where it's needed. Some like Rover, the trusty dog, constantly display advice, while others like Scuzz, the annoying rat, let you make your own mistakes a few times before offering assistance. Bob guides are smart enough to remember what modules you used in the past and whether they should be giving you tips or staying out of your way.

User manuals? Bob doesn't need no stinkin' manuals! Banished are abstract and confusing commands, tutorials, and separate help systems. When you need to know how to get things done, information and directions are presented through dialogue, in a conversational, social style, from your trusty guide.

Opportunity Knocks

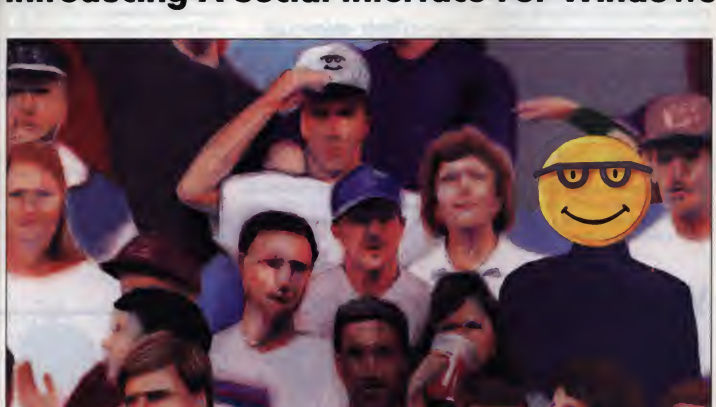
Bob starts by knocking—actually mouse-clicking—on a front door. A happy, helpful Rover is your initial guide, but you can switch to any of the other 12 friends of Bob. The first time you use Bob you'll have to fill out a bunch of information including your name, age, password, and preferred home style. In the future you just click on the knocker and enter.

Instead of Program Manager's groups, you work in and navigate from a virtual room like an attic, study, sunroom, or garage. With Bob, each household member can decorate their own room with more than 40 combinations of rooms and home styles. For example, your kids might store their games in a contemporary playroom, while Mom might lock the family checkbook in a password-protected safe in her castle. Adding other Windows or DOS applications is as simple as browsing your hard disk or just asking your guide. However, your personal guide won't appear in these programs. For the moment, they'll only work with the combo-programs built into Bob.



Microsoft Bob (code-named "Utopia") lets you accomplish a variety of tasks with the help of a guide dog named Rover.

Introducing A Social Interface For Windows



Bobware

A cross between a relational database (and it shouldn't surprise anyone that Bob uses the same storage engine as Microsoft's *Access* database) and an all-in-one Windows package á la Microsoft *Works*, the, er . . . "Bob-ware" programs in Bob are tightly integrated so the Bob Calendar automatically cross-references with information from Bob Address Book and Bob Household Manager. In a family setting, for example, information from Dad's calendar could be sent to the kid's "to do" list, reminding them of a dentist appointment or to clean up their room. The kids could send messages reminding their parents of an upcoming track meet or PTA meeting. The idea is that Bob will help everyone in the household to share, organize, and communicate important information.

Just like icons in Windows, clicking on the pencil fires up Bob Letter Writer, clicking on the checkbook summons Bob Checkbook, clicking on a stack of mail zaps you into Bob E-Mail, while clicking the calendar over the fireplace springs up your daily appointment book. Here's a rundown of what Bob can do for you.

Bob Letter Writer. Will you write business proposals and complex doctorals on Bob Letter Writer? Not hardly. As a matter of fact, the beta version we tested was unable to number pages, search for text, or print envelopes. However, it could dash off a quick letter complete with drag-and-drop clip art, text that automatically wraps around it, and a rainbow of borders and fonts lickety-split. To get you started, there's an entree of 33 templates including a thank you letter and letter to the editor. If you already have a friend's address entered in your Address Book, clicking on the name blasts it into your letter. There's a print preview and multipage viewing and editing.

Bob Checkbook. Because money makes the world go 'round, your normal guide takes a back seat to Lexi, a bespectacled animated male book. An expert's expert, Lexi guides you through Bob Checkbook, which is sort of a Microsoft *Money* Lite. The checkbook works just like any checkbook program, allowing you to write and track income and expenses. You can schedule a transaction and add it to the Calendar as a reminder. Fifty predefined categories organize money with entries for mortgage, food, and car-related expenses. There's a graphic bill basket to manage upcoming bills and nine reports track where your money is going. For an additional

monthly fee, Microsoft offers a Pay On-Line electronic bill-paying option.

Bob Calendar. Everyone in your house can create schedules and "to do" lists on a personal calendar that can be private or shared. Messages and reminders travel back and forth automatically from other programs. Birthdays entered in Bob Address Book automatically appear on your personal calendar. (Later, like a good friend, your guide will remind you that it's time to buy a card and mail it.) Reminders from the Bob Household Manager and Bob Checkbook appear automatically on the "to do" list and calendar. Like a regular desktop calendar, there are day, week, and month views. Bob calendar also features drag-and-drop editing and a printing function for calendars and "to do" lists. You also can customize each day with your choice of 365 daily words to learn, "eco-tips," international holidays and events, and much more.

Each household member can have their own address book.

◆

Bob Address Book. Just as you would imagine, the Bob Address Book manages addresses and personal information through links with other programs. Enter a birthday or anniversary and it will automatically appear in the Bob Calendar. Working with Bob Letter Writer and Bob E-Mail, you can create and manage mailing lists and E-mail address. Each household member can have their own address book.

Bob E-Mail. To use Bob E-Mail, you'll have to have an E-Mail account with an online service like America Online or CompuServe. Or, for an additional base fee of $4.95 per month, your pals at Microsoft will set one up for you. Certainly one of Bob E-Mail's strongest features is the ability to send fancy personalized E-mail to other household members and other Bob users outside of the house. The module provides tips on E-mail etiquette, 100 common E-mail addresses, drag-and-drop editing, message management, and the ability to attach files. Bob Address Book is smart enough to automatically update your address book with

What Bob Says About You

Select one of these characters first, then read on to find out what your choice reveals about your personality.

Are you a happy person? Or a bit crusty and snappish? Are you friendly and helpful, or disagreeable and antisocial? Do you have a dominant personality, a submissive one, or none at all? According to the new social interface research conducted by Stanford professors Drs. Clifford Nass and Byron Reeves, which Bob guide you select says a lot about you.

"From roommates to marriage partners, people like characters most like themselves," explains Nass.

Then why are Bob's guides cutesy animals instead of humans? Research. Over two-and-half years of studies revealed people had higher expectations of human guides while animated animals were given more leeway.

"When we put a human on the screen, even though people knew it wasn't human, they still expected it to *act* human," says Nass. "When the human guides didn't act or respond like real people, users got frustrated. The cartoon characters made users feel more confident and comfortable and exceeded all expectations. So while Chaos the cat is extraordinarily smart for a cat, as a human character she would be rated very stupid."

The Bob guides appeal to a broad bandwidth of personality types. Like real people, every Bob character has a shtick. Rover rewards you by wagging his tail and rolling over. Chaos falls asleep if your actions take too long. Java is excitable from drinking cups of coffee. And with the exception of Lexi, the expert tutor in Bob Checkbook, and the metallic Speaker, they're all living.

So what does each Bob character say about you? Plenty. Match up the number of the character you chose with the explanation below, and you may discover some insights into your personality.

1. Rover the loyal, playful dog is the user's best friend. He scored the highest popularity ranking among every single demographic group tested. No one hates Rover, says Nass, which is why he's the first guide to greet you in Bob. Obviously, dog people love Rover whose props include a mailbox, letter, pen, and bone. His outlook is positive, he's extremely friendly, very outgoing, and very competent.

2. Blythe the bumblebee is the most dominant, cut-to-the-chase character. Not particularly friendly or unfriendly, she gets the job done.

3. Chaos the cat is the most eccentric of the characters. She doesn't have a strong dominant personality. Rather, her personality comes from being eccentric. People who like cats and people who don't have a very clear or well-defined personality are most likely to select her.

4. Hopper, the almost-too-cutesy blue bunny, is by far the most submissive character. She's chosen by highly submissive people and surprisingly, a group of older males who are insecure about computer technology.

5. Java the coffee-guzzling dragon is quite dominant and friendly. The most popular character at Microsoft, Java is somewhat competent but not incredibly so. He's harried, hyperactive, and continually buzzed on bean. His favorite foods are donuts and enchiladas, and he's

new information taken from the return addresses of incoming E-mail.

Bob Financial Guide. The Financial Guide and the Household Manager are more fluff than stuff. Both are more book than software and are the weakest components of the package. Instead of useful financial calculators, the Bob Financial Guide tells you about stocks and mortgages or lets you look up information about buying your first home. To its credit, it does include 100 pages of explanations and some tips. But is it really useful? Nope.

Bob Household Manager. Ditto. Except you get 200 pages worth of inventory and "maintenance information." Templates are provided to enter information like car maintenance and upcoming oil changes and tune-ups that are automatically entered on your "to do" list. You also can store medical checkups and records for each family member or track your CD music or comic book collection. Microsoft suggests using it to track your "goals for the year" or to "build a list of must-have items to take with you on a vacation." Certainly in the next version both modules need to be beefed up.

The Financial Guide and the Household Manager are more fluff than stuff.

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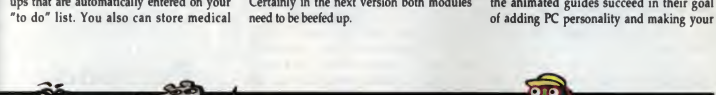
Bob GeoSafari. Hank, the proper English elephant, is your guide in Bob GeoSafari, a multimedia quiz game for kids. Primarily included so Microsoft could say Bob has something for everyone, you have to beat the clock identifying cities, states, bodies of water, countries, and continents. Young kids will like it. But on its own, it's not enough to plunk down $99 for Bob. Which brings us to the main question: Is Bob's alternative Windows shell and home application software for you?

Is Bob For You?

First-time PC users and families seeking to break the PC learning curve barrier are going to love Bob. The interface is clean and easy and the animated guides succeed in their goal of adding PC personality and making your



more popular among adults than kids, probably because he's most like people in their office, says Nass. Java is for people who use their computer as a tool for work instead of for fun.

6. Orby the Galea globe is a kid's character. Both girls and boys love him. He's extremely friendly, very outgoing, and very competent.

7. Ruby the green parrot is one of only two downright unfriendly Bob characters. Maybe it's only a coincidence she's Bill Gates' favorite, but Ruby is very aggressive, not terribly helpful, and applies lipstick when she's bored. People who select her tend to be aggressive and not particularly friendly. "A lot of people say Ruby reminds them of their ex-wife," says Nass.

8. Scuzz, the annoying, basketball-dribbling, guitar-playing, graffiti-spraying rat, is the other unfriendly character. He's dominant, but not as dominant as Ruby. Unpleasant and counter-cultural, he was chosen for MTV male teens. The surprise was how much male adults liked him.

9. Digger the wire-rimmed earthworm is the character adults and children see as the most friendly. He's also somewhat shy, but very effective.

10. Speaker, the only inanimate object in the group, is chosen by people who treat things seriously. They want their information straight up because they need to get their work accomplished quickly and efficiently. They have a less playful nature and sense of humor. Studies showed people who selected the Speaker tired of it quickly and moved to one of the other characters.

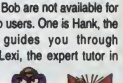
11. Shelley, the backpacking turtle, is another very friendly, very helpful character. The most earth-conscious of all the Bob characters, she is thoughtful and caring about the creatures around her. Not as submissive as Hopper, Shelley acts more like a sure-footed guide. With her by your side, you are sure to find your way.

12. Invisible isn't really a character at all. According to Nass, the people at Microsoft thought some users might want no character at all. (Now what does that say about the people at Microsoft?) Anyway, according to Nass, this turns out not to be true, everybody wants some character. Nass says in later versions of the product this er . . . lack of character probably won't be around.

Of course not every character made it into Bob. Some were rejected because they didn't have a strong personality or were redundant with another character. Others wouldn't animate very well. A cow character was rejected because it looked funny in the house. Martina the talking olive was rejected because of a negative association with alcohol.

The lesson? It's better to be a smart cat than a dumb human. At least in Bob version 1.0. ●

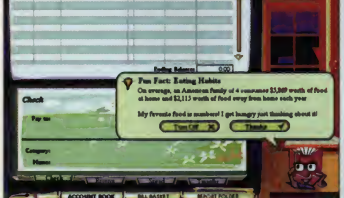
One final note: two characters that appear in Microsoft Bob are not available for "adoption" by Bob users. One is Hank, the elephant that guides you through GeoSafari, and Lexi, the expert tutor in Bob Checkbook.



With a little help from Rover, it's very easy to find and select appropriate commands.

computer fun to use. "It's something I'd expect from a Mac, not a PC, " said one of our testers.

Typical is the experience of 10-year-old Bridget who, with help from Hopper and Chaos (she liked them both), was able to play GeoSafari, write a letter, and decorate her private attic. Bridget's mom Anne said she would probably buy it for her family and would keep it on her home computer as long as Bridget stayed interested, but probably wouldn't use it herself. She thought the guides were cute and helpful, and admitted to having a crush on Java. Adam, an attorney and PC power user, was more critical. While liking the concept of virtual guides, he was less than impressed with their execution. His main criticism: "I'm just not prepared to trade power and flexibility for annoying cartoon characters."



In Bob Checkbook, expert tutor Lexi helps you pay your bills and entertains with bits of trivia.

Are you going to run your business from Bob? No, that's not what Bob was designed for. The collection of eight programs lacks the power and versatility that experienced PC users are accustomed to working with, such as high-powered products like *Microsoft Word*, *Lotus 1-2-3*, and *Quicken*.

Users who always wanted to "get into computing" but were scared off by an alien language chock full of terrifying words like .INI files, IRQs, Program Manager, and General Protection Fault Error will benefit most from Bob. Part-time computer users who don't want to read a manual or expend time walking through an online tutorial but want all the results without any of the work will love Bob. The up-until-now technically challenged who never thought they'd ever see the day that they'd be able to sit down and knock out a letter, or balance an electronic checkbook, or see what they're doing on June 14th, will sing Hosannas at the alter of Bob.

Bob-bing For Applets

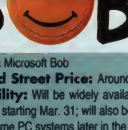
The rest of us will know Bob is far from perfect. In the beta version we tested, Bob wouldn't let you decorate rooms with your own pictures or art. Bob Letter Writer inexplicably didn't preview font samples. Helpful labels didn't pop-up when your cursor passed over icons. And, if you wanted to install a printer, your guide could find the Control Panel but couldn't tell you how to use it.

Even worse: the CD-ROM version we tested, pardon the expression, ran dog s-l-o-w. And, while Bob is a perfect example of how software is getting richer with the integration of sound, graphics, and animation, he still needs to go on a diet. Bob weighs in at a hefty 8 megabytes (MB) of random-access memory (RAM) and like a moody friend, he needs his own space. You'll need more than 30MB worth of hard disk space plus a speedy 486 to take full advantage of Bob.

The perfect target audience for Bob, however, won't care a whit about any of the flaws. What you can bet on is if enough non-computer types become computer people because of Bob there will be an avalanche of third-party manufacturers Bob-bing for more applets. Bob look-alikes will start to appear as computer companies jump on the anthropomorphic Bob software bandwagon. If the next revolution is indeed social, Bob is a giant leap forward in adding personality to your PC. ●

by Michael Cahlin

Personal Facts About BOB



Product: Microsoft Bob
Expected Street Price: Around $99
Availability: Will be widely available at retail stores starting Mar. 31; will also be bundled with some PC systems later in the year
Target Market: Technophobes, first-time PC users, sporadic PC users, family PC users
Special Features: Bob introduces the concept of the "social interface," where characters act as intermediaries to help users accomplish tasks with the PC. The program is an interface that runs on top of Microsoft Windows
System Requirements: IBM Compatible; 8MB RAM; 32MB Hard Disk Space; 486 CPU (the faster, the better); Windows 3.1 or later; Modem (for E-mail)
Strengths: Very user-friendly; no user manuals required; broad range of mini-applications comes with program
Weaknesses: Cartoon characters may become tiresome; graphics slow down operations; requires fast CPU and healthy amount of RAM and disk space to run properly ●

wouldn't it be nice to buy a COMPUTER from someone WHO'S down-to-earth?

If it seems like you need a degree in physics to find the right *computer*, then maybe it's time you shopped Sears Brand Central. Where you'll meet patient, *knowledgeable* salespeople who can help you figure out exactly what you want. And explain it all in plain English, without the *technical* talk. Whether you're a chess fiend, gourmet cook or astronaut in training, you'll find row after row of software for the whole *family*. In the latest formats, from multimedia CD-ROM to Pentium. Plus top-name systems like Apple, Compaq and Packard Bell. Computer shopping can be complicated. So shoot for *Brand Central* and keep it simple.

SEARS

Lights, Camera, Action!

Multimedia Authoring Packages Help Kids Stage Their Own Productions

Sometimes it seems as if you need a degree in computer science to operate a PC. Business applications sport so many commands and user-definable preferences that it takes a lot of time and effort to be productive. Children's programs, on the other hand, are meant to be friendly. Their point-and-click graphical interfaces require little, if any, reading. Their intuitive tools get work done without drowning youngsters in details.

The latest kid-oriented presentation packages are a good case in point. With a few simple clicks of the mouse, children stage upbeat electronic productions that feature colorful graphics, two-dimensional animations, boisterous audio effects, video clips, and text. These electronic toolkits come with ready-made collections of artwork, video sequences, and sounds for the design of attention-grabbing slide shows, animated cartoons, and digital movies. This month, we examine several kid-friendly multimedia authoring packages.

Kid Pix Studio

The original Kid Pix topped the software charts for months, setting the standard for dozens of paint programs that followed. It featured wacky design tools, humorous electronic stamps, and more zany sound effects than a Steven Spielberg blockbuster.

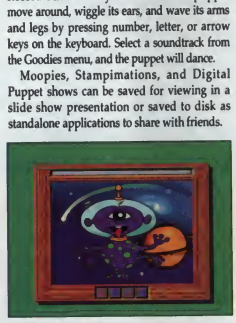
Kid Pix Studio (Macintosh CD-ROM, Windows CD-ROM imminent) includes the original Kid Pix applications—Kid Pix, Wacky TV, and Slide Show—plus three new multimedia animation toolkits—Moopies, Stampimator, and Digital Puppets. Youngsters can design illustrated screens, movies, and slide show presentations that are enhanced with animations, photographs, special effects, sounds, and music.

Artists choose Moopies to create their own animated cartoons. The program's brush tool "paints" moving pictures while the stamp tool imprints selected animated images. Both tools produce scenes with moving objects. Any stamp can be edited for special effect.

Stampimator creates musical productions starring animated stamp characters. Each Stampimation can feature up to four moving stamps. Just pick a background, then select a character to move across the canvas. The program remembers the path traced and repeats the movement until stopped, playing a musical clip selected from Stampimator's sound library or a recorded audio effect.

In Digital Puppets, a Studio puppet show features one of 10 electronic puppets. Kids pick a background, choose a puppet, and press the Record button. They can make their puppet move around, wiggle its ears, and wave its arms and legs by pressing number, letter, or arrow keys on the keyboard. Select a soundtrack from the Goodies menu, and the puppet will dance.

Moopies, Stampimations, and Digital Puppet shows can be saved for viewing in a slide show presentation or saved to disk as standalone applications to share with friends.



In *Kid Pix Studio*, youngsters can organize a puppet show featuring this purple astronaut or one of nine other puppets available.

Kid Pix Studio
$45
Broderbund Software Inc.
(800) 521-6263; (415) 382-4400

Kid's Studio

Kid's Studio (Macintosh/Windows CD-ROM) encourages children (ages eight and up) to tell stories with photographs, drawings, words, and sounds. Completed tales are displayed as self-running slide shows, which may be saved to disk as a QuickTime (Macintosh) or Video for Windows (Windows) movie.

Kid's Studio comes with a Treasure Chest library featuring 986 pictures and offers support for imported Photo CD images. Kid's Studio has a Paint Box for drawing pictures in cookie-cutter shapes and a Storyboard editor to sequence completed Studio screens with transition effects. Any screen can have a colored or patterned background. A simple word processor lets kids add text.

Kids can create presentation screens by choosing a background and double-clicking on the Treasure Chest icon. Thumbnail representations of pictures in the clip-art library appear on-screen. Single-clicking on a thumbnail image makes its text description appear. Double-clicking on an image causes its name to appear in the My List window, ready to be added to the page currently under design. Treasure Chest pictures are organized by category for easy access.

Treasure Chest pictures position on-screen in layers. They can be moved, brought forward, sent to the back, or resized. If your computer has a microphone, sounds can be associated with pictures. When kids present the slide show, sounds play in the order in which they were recorded.

Kid's Studio has neither animation tools nor a spell checker. Kids won't be able to modify text font or type size but will still enjoy designing narrated electronic stories in this easy-to-use program.

Kid's Studio
$39
Storm Software
(800) 787-2983; (415)691-6600

The Multimedia Workshop

Children who are bored writing conventional paper-based reports can strut their creative stuff with Davidson's *Multimedia Workshop* (Macintosh/Windows CD-ROM). This authoring program has three feature-rich workshops, which contribute to the design of dynamic multimedia presentations containing text, original illustrations, QuickTime movie clips, voice-over narration, and sounds.

In Writing Workshop, kids compose text for the presentation. This desktop publisher provides ready-made templates that generate classy-looking book reports, letters, calendars, and more. Alternatively, kids can produce their own document. A spell checker and thesaurus are available.

Paint Workshop offers many tools, colors, and patterns for creating new illustrations or editing existing artwork. It features several brush and geometric shapes. Kids can apply gradient fills; use special-effect tools, such as the water dropper or spray can; and sharpen, blur, flip, or rotate an image. Paint Workshop is actually a separate application not accessible from either Writing or Video Workshop screens, but Paint images can be easily imported into Writing and Video Workshop documents.

Video Workshop lets kids produce individual scenes for their presentation. Any scene can have a colorful illustrated background, clip art, text, or QuickTime movie clips. Kids can even attach prerecorded audio clips from the program's sound library or record new effects if your computer has a microphone. Once the scenes are complete, kids can arrange them in the module's Video Sequencer for on-screen presentation.

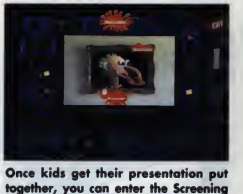
In Video Workshop's Sequencer, certain squares on the grid hold photographs, art clips, or QuickTime movies; others hold sound. Each square represents one second of play time. Kids can place an element in a grid square and then drag it across the squares to determine the element's time on-screen. Wipes, fades, blinds, or other special-effect transitions may be inserted for a smooth segue from one scene to another.

Multimedia Workshop does not create standalone presentations, so an installed copy of the program is required to view a show.

The Multimedia Workshop
$69.75
Davidson & Associates
(800) 545-7677

Nickelodeon Director's Lab

In *Nickelodeon Director's Lab* (MS-DOS CD-ROM), kids work with a suite of sophisticated tools to create on-screen movies, cartoons, or animated reports. Multimedia theatrics combine illustrations, photographs, splashy titles, video clips, music, and sound effects. A full-service production studio metaphor simplifies the design process.



Once kids get their presentation put together, you can enter the Screening Room to watch the shaw in *Nickelodeon Director's Lab*.

Kids start off in the Main Hall, an electronic foyer with several labeled doors. Each door serves as a gateway to a special studio where kids work on an aspect of their presentation. For example, click on the Title Editor door to make video titles or headlines. Kids can work on individual Title Screens by typing or changing text to suit their directorial temperament. Libraries of ready-made titles provide creative inspiration while on-screen Help gives instructions. Test guides show how the title will look against different color backgrounds.

Visit the Graphic Studio to paint illustrated backgrounds for the video. Kids can touch up prefabricated illustrations using this studio's special tools. An electronic easel holds the design as kids draw with paint brushes and geometric-shaped draw tools selected from studio art shelves.

Kids can paint with 64 shades, select a different color palette, or stamp their design with ready-made art clips.

Video Suite lets kids play with ready-made video clips. Kids can use each video as is or stamp individual frames with ready-made designs for special animation effects. Director's Lab lays out each frame of the selected video in a special grid for easy editing. Kids just select the stamp they want to animate and click the video frame that will hold the stamp. When the frame appears in the work window, click the spot where the stamp is wanted. Select a new frame, position the stamp in a slightly different place, and stamp again. Repeat this procedure for each frame in the video sequence. When the movie plays on-screen, it will seem as if the stamp is moving around.

Kids use the Music Studio to score their own compositions or select ready-made tunes for the video. They can experiment with music speed, different instruments, and special loop effects. Visiting the Sound FX Studio makes the video come alive with wacky bings, boings, and screams. Echo and Reverb tools produce zany effects. A Mixer combines two sounds. Kids can record their own sounds if your computer has a microphone.

Kids visit the Director's Lab to assemble the parts of the production. There's a separate timeline for each multimedia element (i.e., graphics, video clip, sound, music, etc.). Simply line up the parts on the timeline so they present at exactly the right moment. Kids can add special-effect wipes to mark transitions from one frame to the next.

A preview screen shows what's been selected and how it will look. Click-on shortcuts return kids to a particular studio to touch up a presentation element before inserting it in a show. After saving the presentation, visit the Screening Room to sit back and enjoy the show, complete with canned applause. If kids want to share their production with someone who doesn't have a program copy, just click the Screening Room's Video-To-Go option. The show saves to disk for standalone presentation.

Nickelodeon Director's Lab
$59.99
Viacom New Media
(212) 258-6000

Video Jam

Get ready to shake, rattle, and roll! *Video Jam* (MS-DOS) choreographs music videos with stage sets, animated characters, and songs selected from the program's media libraries. Putting together a show is simply a matter of pointing and clicking. First, audition the actors. There are 40 animated performers in Video Jam's actor's guild. Each production can star more than one performer. Next, choose a background scene. Video Jam offers 25 ready-made stage sets. Finally, select a toe-tapping musical score for accompaniment. There are six musical genres and 50 songs from which to choose. Visit the Studio to put it all together. Kids can position actors

In *Video Jam*, children can choreograph their own music video, complete with dancing animated characters.

onstage, choreograph their movements, add props, and apply special "magical" effects. Dance steps may be synchronized to a tune's melody and rhythm.

Animations play as long as there is music. Kids can make changes by setting the video to the frame they want to edit and adding or deleting props, movements, magical effects, or actors. The program lacks recording capabilities, so kids can't add their own sounds. Completed videos may be saved to disk for future playback.

Video Jam
$49.95
EA Kids, a division of Electronic Arts
(800) 245-4525

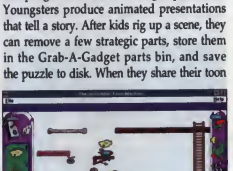
■ Cartoon Bonanzas

If you're worried your kids watch too many television cartoons, give them a chance to design their own animations with Sierra's *Incredible Toon Machine* (Macintosh, Windows) and Big Top's *Cartoon Toolbox* (Macintosh, Windows). These programs use animated cartoon critters and gadgets to exercise, rather than dull, the brain. In the Incredible Toon Machine, youngsters manipulate dozens of goofy gizmos, such as steaming teapots and floating balloons, to solve wacky puzzles. Cartoon Toolbox invites kids to produce animated cartoons featuring Felix the Cat and his many friends.

The Toon Machine has three activities. In Toon-O-Matic and Head-2-Head, kids solve ready-made puzzles. They build increasingly sophisticated, animated, Rube Goldberg-style contraptions to get characters to climb ladders, fall through holes, munch plates of fish, and more. Toon-O-Matic features 100 puzzles at varying levels of difficulty. If youngsters solve the whole batch, they can take on 10 bonus brain stumpers.

Head-2-Head pits one contestant's puzzle-solving acumen against another's in single or tournament-style contests.

HomeToons, the final activity, lets children make their own cartoon puzzles using dynamic contraptions and silly characters selected from the program's Grab-A-Gadget parts bin. Youngsters produce animated presentations that tell a story. After kids rig up a scene, they can remove a few strategic parts, store them in the Grab-A-Gadget parts bin, and save the puzzle to disk. When they share their toon



Kids can use the *Incredible Toon Machine* to solve ready-made puzzles, in which youngsters build contraptions to make characters climb ladders or fall through holes.

creation with others, viewers can interact with the zany presentation by solving the puzzle.

The Cartoon Toolbox produces colorful, motion-filled cartoons using traditional path-based animation techniques. The point-and-click interface (which requires no reading) invites would-be animators (ages seven and up) to tell Felix the Cat cartoon stories. Kids design a cartoon by selecting ready-made backgrounds to decorate with predrawn actors, props, musical clips, and sound effects.

Kids don't have to be professional animators to get Felix and chums to steal the show. These characters automatically walk, run, jump, or dance when dragged across the screen. Reselecting the characters with the mouse lets youngsters reposition them on the screen. Spice up a scene with a snappy sound effect. Segue into a new plot line with a toe-tapping musical interlude. The cartoons have a professional look and may be saved to disk as a standalone production for later viewing.

The Incredible Toon Machine
$34.95 (DOS, Windows, or Mac diskette);
$39.95 (Windows CD-ROM)
Sierra On-Line Inc.
(800) 757-7707; (206) 649-9800

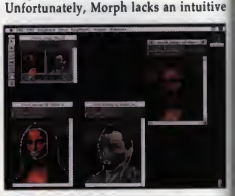
Cartoon Toolbox, Starring Felix the Cat
$54.95
Big Top Productions
(800) 900-PLAY; (415) 978-5363

■ Morph v2.5

Gryphon's *Morph v2.5* (Macintosh/Windows) is a special-effects tool. It creates QuickTime (Macintosh) or Video for Windows (PC) movies that show the transformation of one picture into another.

Morph simplifies the transformation because kids only need start and end pictures to create an animated illusion. The program generates all in-between images, saving the animation in movie format for display on-screen. When the sequence is presented, it has a magical effect.

Older children (ages 14 and up) will find this program intriguing. The Macintosh version opens .PICT images while the Windows version supports several still-image formats, including .BMP, .PCX, .WMF, and .GIF. Macintosh Morph movies can be brought into Multimedia Workshop and Kid Pix Studio. Kid Pix Studio for Windows will open Morph's Video for Windows movies. Unfortunately, Morph lacks an intuitive



In *Gryphon's Morph*, teens can create animated illusions by choosing two images and then watching the transformation on this Macintosh screen.

interface. Users must read the manual to learn about program features. Persevere! The animated end results are dazzling.

Morph, v2.5
$99
Gryphon Software Corp.
(800) 795-0981; (619) 536-8815 ●

by Carol S. Holzberg, Ph.D.

Personalize Your Computer With

Screen Savers

Most software has a practical purpose. After all, the computer and the programs it runs exist because they make tasks easier and offer a more efficient means to an end. But the driving force behind the recent explosion in the screen saver market is far from practical. Screen savers are just plain fun.

Screen savers began as small, practical utility programs that protected computer screens from something called **burn-in** when they were left idle for long periods of time. If the same image remained on-screen for an extended period of time, especially if it was a DOS application with black background and monochrome text, the monitor's screen could be damaged. The result was a faint image of whatever was left on-screen for the extended time period. Users worried about burn-in until the screen saver utility came along and replaced the on-screen image with a moving graphic that never stayed in the same place long enough to cause burn-in.

As the years passed, monitor technology improved and graphical user interfaces (GUI) replaced the black background and monochrome text. With the exception of monochrome monitors, which have more potential for burn-in than color displays, burn-in prevention is no longer the purpose behind screen savers. In fact, burn-in is unlikely to occur in nearly all monitors used.

However, computer users discovered that they liked screen savers because they let them personalize their computers. They could go on break, attend a meeting, or run to the refrigerator and, when they came back, there would be toasters flying across their screens, fish swimming inside their monitors, or Disney's Goofy painting their screens black.

With monitors becoming impervious to burn-in, screen saver manufacturers began giving the products other utility features, such as data security. If you're working with a sensitive file, not only is the image covered with a screen saver when you walk away, the file is password protected.

Besides this somewhat practical purpose, screen saver software is mainly entertainment software. Consumers are just as likely to throw it in their shopping cart as they are the latest in computer games—maybe even more so.

Today's screen saver market is far from reaching a plateau. In fact, according to International Data Corp., a Framingham, Mass.,-based market research firm, the screen saver market is expected to grow to $180 million in 1997, more than double the 1993 market of $80 million.

(NOTE: All prices in this article are suggested retail prices unless otherwise noted.)

■ Berkeley Systems

In 1989, Berkeley Systems introduced *After Dark*, the first **modular** screen saver (a screen saver that could be programmed to do different things). Before that, screen savers either blanked the screen or presented an image of exploding fireworks.

The After Dark program included several unusual and fun images, the most popular of which is the Flying Toaster (a toaster appliance with wings). The Flying Toaster has since become Berkeley's mascot. Berkeley has not only sold more than two million copies of After Dark, it also has sold $100,000 worth of Flying Toaster T-shirts and ties.

Since 1989, Berkeley Systems has introduced several screen saver products ranging in price from $20 to $30 (estimated street price), including *Star Trek Screen Posters, Marvel Comics Screen Posters, The Disney Collection Screen Saver, Star Trek: The Screen Saver*, and *More After Dark*.

After Dark 3.0 is the newest version of this ever-popular program. Users can watch the precocious puppy Bad Dog run amok on the desktop, test their trivia with the wacky game "You Bet Your Head," or try their luck with the Rat Race (a rodent rendition of the Triple Crown). There is also a new school of fish and, of course, the majestic Flying Toaster

squadron. *The Simpson's Screen Saver* has 15 animated displays that let you battle with Itchy and Scratchy, throw tomatoes at Krusty the Clown, or listen to Lisa play the blues. In *The X-Men Screen Saver*, Wolverine shreds your screen with his razor-sharp claws, Magneto bends your display, and Beast performs death-defying acrobatics across your screen. *Star Trek: The Next Generation Screen Saver* has animated displays of Captain Picard, Lt. Commander Data, The Borg, and others.

For more information about any of these diskette-based products, contact Berkeley Systems at (510) 540-5535.

Delrina Screen Savers

Delrina Corp. also offers a handful of savers and recently reintroduced its *Opus 'n Bill Screen Saver*. In the original debut, Opus and his best friend Bill the Cat, the cartoon characters from Berke Breathed's popular newspaper comic strips "Bloom County" and "Outland," became the center of a great legal controversy because Opus shoots down flying toasters with wings. In response to a lawsuit filed against Delrina, the new version replaced the wings with rotors.

The $39.95 product has 16 animated sequences with appropriate sound effects. Each sequence begins with a short, animated story, followed by a repetitive animation. Don't expect any political correctness from this program. Bill the Cat has an illicit affair with Socks Clinton, the presidential cat. To keep your screen saver current with new political quips, you can receive quarterly updates with 20 new animations per year.

If Gary Larson's offbeat "Far Side" humor is more your style, Delrina has *The Far Side Screen Saver Collection*. This $39.95 collection has 14 animated modules, including four that provide a twisted insight into the evolutionary process, another that depicts what goes on in the henhouse when no one's watching, and one with bison that roam the prairie in a whole new way.

With *The Flintstones Screen Saver* ($34.95), you can have a Yabba-Dabba-Doo time with Fred, Wilma, Barney, Betty, and the whole Bedrock gang. Complete with sound, this program even sings the theme song. And you and your co-workers won't believe it when the Dictabird records and repeats sound bites from your office.

The *Dilbert Screen Saver Collection* ($39.95) is based on the popular comic strip that appears in more than 260 newspapers and on several online services. For those people who get a chuckle out of tales of corporate incompetence, this may be the program for you.

For more information about Delrina's diskette-based products, call the company at (800) 268-6082.

Mega Dittos

If you're a Rush Limbaugh fan and want to express your political views via computer, you'll enjoy AristoSoft Inc.'s new screen saver, called *Mega Dittos. . . The Screen Saver*. The $59.95 CD-ROM product has eight screen savers portraying the best parodies and humorous depictions of Limbaugh's favorite subjects. They include a parody of Hillary Rodham Clinton's health care plan, a takeoff of MTV's "Beavis and Butthead" called "Billvis and Gorehead," various headlines from the liberal press, and a cartoon showing Vice President Gore supporting owls (literally, as a tree) in Washington state.

According to the box, the screen saver "brings more fun to your computer screen than the left wingers and environmentalist wackos want you to have." Yet the company insists that it has no political agenda and is just writing programs that the 22 million people who listen to Limbaugh's radio talk show would enjoy.

If you're one of the 22 million, you may want to take a look, if you can handle the comments you'll undoubtedly receive from co-workers. For more information about Mega Dittos, call AristoSoft at (800) 338-2629.

In Delrina's *The Far Side Screen Saver Collection*, one module depicts what happens in the hen house when no one is watching.

COURTESY DELRINA CORP.

Sound Source Interactive's *The Twilight Zone Screen Saver* takes users ta the fifth dimension, beyond that which is known to the human race.

COURTESY SOUND SOURCE INTERACTIVE

The popular squadron of Flying Toasters continues in Berkeley System's *After Dark* 3.0.

A Little Piece Of Hollywood

With three screen saver packages on the market, Sound Source Interactive, an up-and-coming player, is trying to bring Hollywood to the desktop.

In 1993, Sound Source introduced *T2: The Screen Saver*. This $19.95 (estimated street price) diskette product is based on the Arnold Schwarzenegger film "Terminator 2: Judgment Day" and features animated terminators, liquid-metal morphs, cybermachinery, and the voice of the Terminator himself saying things like "I'll be back" and "Hasta la vista, baby!" (This was actually Sound Source's second product from the movie. The company previously introduced *Terminator 2 AudioClips*, which lets users assign movie-clipped sound bites to Microsoft Windows events like startup and the opening of certain program windows.)

Sound Source introduced *The Twilight Zone Screen Saver* in 1994, which takes users to the fifth dimension. Produced under license with CBS and Carol Serling, this screen saver includes audio clips of Rod Serling's monologues, and sound effects and music from the classic television series. The software comes with a 3.5-inch diskette and a CD-ROM and sells for $19.95.

Sound Source also released a third screen saver on diskette based on the popular television series *Saturday Night Live!*. For more information about Sound Source Interactive's products, contact the company at (800) 877-4778.

DeskTop Software Inc., in conjunction with SoftImage Publishing Inc., is also providing its own piece of Hollywood to Marilyn Monroe fans. The *Marilyn Monroe Screen Saver Collection* is a photo collection of many never-published photographs of Marilyn, along with some of the famous shots nearly everyone has seen, including the "Flying Skirt" shot taken during the 1954 filming of "The Seven Year Itch." This $19.95 diskette-based screen saver works with Windows and DOS. It is also available on CD-ROM for $24.95. Its images can be used as screen savers or as **wallpaper** (backdrops behind your Windows programs).

For more information about the Marilyn Monroe screen saver, call (203) 741-8535.

The Sierra Club Nature Collection gives PCs a piece of natural beauty.

COURTESY SOFTIMAGE CORP.

***Slide Show* collections from Second Nature Software provide computer users with beautiful photographs to use as screen savers or wallpaper.**

Microsoft Scenes

Although most screen savers have moving images, there are several packages that create photographic "slide shows" on your computer screen.

Some of the most popular packages come from Microsoft Corp. The diskette-based *Microsoft Scenes* collections ($24.95 each) come with 48 high-resolution images that can be displayed as screen savers or wallpaper. You can choose one image from a set of "thumbnail" pictures, or you can have the software cycle through several images. If you want to be educated on the pictures you're viewing, each one comes with explanatory text.

The *Sierra Club Nature Collection* will appeal to nature lovers wanting to experience the sparkling clarity of a glacier lake or the rugged beauty of a desert sunrise. Besides its beautiful images of the Adirondack Mountains, Alsek Glacier, Columbia River Gorge, Grand Canyon National Park, Yosemite Falls, and more, the collection includes inspirational quotes from legendary naturalist John Muir. As an added bonus, a portion of the proceeds from the sale of this screen saver supports the Sierra Club's efforts to preserve and protect the environment.

Microsoft also offers the *Sierra Club Wildlife Collection*, which features rare and endangered species; the *Hollywood Collection*, which features black-and-white photos of stars of the silver screen; the *Undersea Collection*, which provides glimpses of aquatic life; the *Flight Collection*, which has still shots of combat aircraft; and the *Brain Twister Collection*, which features 3-D stereograms.

If you want to use your own photographs, the $24.95 Microsoft Scenes collections allow you to display them. Genigraphics provides a service for scanning pictures into the Microsoft Scenes format, and three free scans come with the Scenes software.

For more information about Microsoft Scenes, contact Microsoft at (800) 426-9400.

Slide Show

Other eclectic collections of wallpaper and screen saver images are available in *Slide Show* collections from Second Nature Software Inc. There are 45 diskette-based Slide Show collections, each with 22 to 50 images.

Enjoy planes, trains, and automobiles with collections named *Air Power by George Hall, Historic Planes by Michael O'Leary, Classic Trains by John S. Murray,* and *Classic Cars by Ron Kimball*. Live in the animal kingdom with *Cats by Siri, Art Wolfe African Wildlife,* and *Horses by Ron Kimball*. Enjoy the serenity of nature with *David Muench's National Parks, The Anthony Casay Collection,* and *Mountain Splendor by Photo!Aspen*. There are also collections with mystic and fantasy scenes, impressionist artwork, outer space, and much more.

Slide Show uses a thumbnail system to select images. By pressing the image button, a dialog box with thumbnails of the available images pops on-screen. To select an image, click on its thumbnail slide. The screen saver part of the Slide Show program includes numerous special effects, such as paint dripping across a picture on the screen, or you can watch as an image is turned into a puzzle.

One important thing to note about Slide Show is that 10% of the sales and profits from the image collections, which are priced at $15, go to the Nature Conservancy, the Audubon Society, and the Smithsonian Institution.

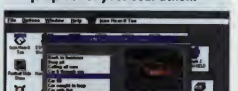
For more information about Slide Show, contact Second Nature at (800) 344-4323.

ROMaterial And More

One thing you'll notice about many of today's screen savers is that they offer more than traditional screen savers. For example, Moon Valley Software has three CD-ROM products that include screen savers and a whole lot more.

The company's $39.99 *ROMaterial* software includes video and audio effects that brighten up your Windows interface. Its 500 sound effects include animal hoots and howls, musical instruments, and commands in six foreign languages, as well as various English and American dialects. Or you can personalize Windows icons with your choice of 500 designer static icons and 200 animated ones. You are also given 250 cursor choices and 100 wallpaper choices. And the program has 75 "Screenbreak" screen savers (photographic backdrops that turn into moving video scenes). For example, your screen saver can show deer playing, a bear fishing, or otters swimming. You can see a bird's-eye view of the life of a spider, fly, dolphin, or mouse. Or you can watch a geyser blow.

Moon Valley Software's *ESPN Sports Shorts* gives computer users the ability to create asports-desktop with "drop-your-peanuts and jump-out-of-your-seat action."



ROMaterial was such a success that Moon Valley recently released a sequel, *ROMaterial Again!* Including sounds, photographic images, and video clips specifically for your office desktop, the $19.99 package has video that explores the worlds of construction and assembly-line workers, nurses, and stock brokers in its Screenbreak screen savers. Its sounds include the clatter of typing, printing, and facsimile machines.

In Spring 1994, Moon Valley introduced *ESPN Sports Shorts*. This $39.99 CD-ROM product for Windows gives users the best of ESPN in three- to 20-second video clips and audio files. The result is that users can create a sports desktop with full-motion video, sizzling sound clips, and brilliant video screen savers. Whether users like football, basketball, hockey, baseball, golf, auto racing, or other sports, there is material in ESPN Sports Shorts that they'll love. They can customize their desktops with their favorite team colors, select from sounds like cracking bats, roaring crowds, or ESPN commentators like Chris Berman. Finally, when their computers are inactive for a period of time, a video screen saver of some of the most special moments in sports can play on their computer screens.

For more information about Moon Valley Software's CD-ROM products, call (800) 473-5509 or (805) 781-3890.

Dinosaurs And Multimedia

Asymetrix Corp. also has two entertaining screen savers that go beyond the traditional screen saver scope.

Jurassic Park, based on the hit movie, is available in CD-ROM or diskette form. Because CD-ROM offers much greater storage, this $34.95 version can include about 10 times as many entertaining factors, offering more than 60MB of screen saver shows, wallpaper scenes, and sound effects. The screen saver lets you play scenes from the movie, attach dinosaur sounds to Windows events, listen to characters from the movie, or let your screen tell the story by circling through the movie's scenes. The product also includes a Dinosaur Encyclopedia with unusual details and facts about the dinosaurs featured in the film.

If you like the multimedia aspects of the Jurassic Park screen saver, but aren't big on dinosaurs, chances are you'll like the $34.95 *Multimedia Screen Saver*, which turns your PC into a multimedia showcase with stunning graphics, video, sound effects, and music. With this screen saver, which comes on CD-ROM and diskette, you can immerse yourself in the ethereal sights and sounds of a pristine coastal rain forest, enjoy the spirit of the holidays with a photo collage set to Yuletide music, or watch orca whales splash playfully as they voice their mysterious calls to one another.

Asymetrix also offers three more screen savers on diskette and CD-ROM: *Pink Panther, Rocky and Bullwinkle,* and *Natural States*.

For more information about Asymetrix's products, call (800) 448-6543.

Computerized Fly-Bys

Feature Presentations: Flight from Colorado Spectrum is also touted as much more than a screen saver. The maker of computer accessories for flight and driving simulations introduced this product so aviation enthusiasts could personalize their Windows environment with photographic images and digitized sounds of their favorite aircraft.

The $29.95 diskette-based package includes more than 40 photographic images of vintage and contemporary aircraft (like a B-17 Flying Fortress, a P-38 Lightning, an F-14 Tomcat, and a Lancair IV) that can be used as wallpaper or in a continuing slide show. It has more than 15 aircraft sounds (like a P-51 Mustang as it thunders to life or a B-25 Mitchell dropping a bomb) that can be played during Windows events. Its animated

COURTESY COLORADO SPECTRUM

Colorado Spectrum's *Feature Presentations: Flight* lets aviation enthusiasts personalize their Windows environment with photographic images of vintage and contemporary aircraft.

screen savers include a crop duster, a B-25 Bomber, and floating skydivers. An air events calendar provides locations and dates of airshows across the country (and is updated annually). And last but certainly not least, an aircraft fly-bys reference that contains vital statistics and pertinent facts for each of the featured aircraft.

For more information about Feature Presentations: Flight, contact Colorado Spectrum at (800) 238-5983 or (303) 225-6929.

More For Sports Fans

For serious sports fans wanting to display team logos on their computer, Quadrangle Software has licensed team logos for its series of screen savers ($29.95 each). The newest in this series is the *Lights Out Sports Fans: Collegiate Screen Saver*, the only screen saver licensed by collegiate organizations. It features authentic team logos, sports-related sounds, and team logo wallpaper. The screen saver modules include simulated baseball, basketball, football, and hockey games that play out on the screen using actual statistics, a carnivorous Home Team blimp that flies across the screen devouring the logos of conference rivals, fans in the stadium performing "The Wave," and floating logos.

Other Lights Out screen savers include: *Lights Out Sports Fans: Major League Baseball Screen Saver*, *Lights Out Sports Fans: National Hockey League*, *Lights Out Sports Fans: National Football League*, and *Lights Out Sports Fans: National Basketball Association*.

For more information about these diskette-based products, call Quadrangle at (800) 253-8397.

There Are Still More. . .

For computer users looking for an inexpensive, traditional screen saver, there are many to choose from. One new one is *Before Light* from The WizardWorks Group. The $19.99 diskette-based Windows program has more than 30 colorful screen savers, including swimming fish, flying stars, moving mice, hovering UFOs, and a moving clock. A CD-ROM version will be released in the spring for $14.99. For more information about Before Light, call The WizardWorks Group at (612) 559-5140.

There are also companies that will help you customize your screen savers. The Screen Team of Claremont, Calif., will help you promote your company and products with screen savers depicting your company message, logo, products, slogan, or special promotions. For more information, call (714) 443-3130.

Personal Screen Image's (PSI) *Personalize It!* program lets you use photos of your family, pets, or summer vacation to brighten up your work day. The $24.95 program charges only for shipping and handling for one image and $5.95 for each additional image. For more information, call PSI at (800) 728-4397.

With all of the options available, there's no excuse for not having a screen saver that fits your personality—unless, of course, you're the type of person who just can't fathom buying a software product that doesn't *really* make you more productive. If that's the case, lighten up. Every computer user deserves a little fun now and then. ●

by Lori Beckmann Johnson

Special thanks go to David DeVries of Golin/Harris, and NEC Technologies for their help with this article.

Jurassic Park from Asymetrix Corp. includes many screen saver shows, wallpaper scenes, and audio clips from the blockbuster movie.

COURTESY ASYMETRIX CORP

Getting Started With Quicken:

Part II

If your work week leaves little time for family life or even sleep, figuring out exactly where all your income goes is probably the last thing on your mind. Sure, you have a sense of the big picture. You know you need to budget for mortgage and car payments, weekly groceries, clothing, health insurance, and the kids' college fund. But the details of how much you earn and spend, and what will be left over for next summer's vacation, are pretty murky.

Luckily, there's *Quicken*, the software program that's revolutionized the way consumers and small businesses handle everyday financial tasks. With user-friendly screens that look and work just like a paper checkbook and convenient pop-up calculators, it tracks income and expenses to present a clearer picture of how much money you have, how much money you owe, and the costs of all your debts. A timesaving QuickFill function anticipates transaction details, entering information on your behalf as you update your various account registers. (For more information on these features, see "Getting Started With Quicken: Part I" in the March 1995 issue of *PC Novice*.) Quicken is so popular that more than six million copies are in circulation, with versions for Macintosh, DOS, and Windows.

Quicken 4 Deluxe for Windows CD-ROM sports the most robust set of features of all the Quicken products. In addition to organizing your finances, reconciling bank accounts, paying bills, and printing checks, this financial toolkit includes video tutorials that explain program basics, plus jargon-free advice from financial experts. You can create a budget, track tax-related information to see in advance how much you'll owe Uncle Sam, and consult four electronic reference books to make informed decisions about investments.

Home Inventory Management

This month, we look at Quicken's Home Inventory module. This mini-application (available from Quicken's Add-Ons menu) creates a database of personal belongings, enabling you to keep detailed and organized records of your possessions. There are several reasons why you should know exactly what you own. First, once inventory information is within easy reach, you'll have all the figures needed to evaluate the adequacy of current in-

surance. A standard policy doesn't cover your ever-expanding collection of baseball cards, ceramic figurines, oriental cookbooks, or "Star Trek" memorabilia, though there are special policy endorsements available. With a detailed inventory, it's easy to get your valuable widgets appraised.

Second, once an inventory of your belongings is saved to a floppy diskette and stored in a secure place, you don't have to worry about remembering what you have. All the information required to file an insurance claim in the event of property theft, damage, or loss is available at the point and click of a mouse. Third, Quicken uses inventory information when it tallies your total net worth, giving you a more accurate picture of total assets and liabilities. Finally, knowing the details of what you own comes in handy when drafting a will. You'll be better able to plan for the distribution of your personal property.

Quicken 4 Deluxe for Windows does not ship with printed instructions for its Home Inventory module. It does, however, include an electronic Home Inventory User's Guide (available from the Help menu). If you read this guide, you can create a complete inventory of your possessions and determine how much insurance coverage you need. Like a conventional printed book, this on-screen guide has a table of contents and an index to locate specific topics. Thanks to its electronic format, you can access information merely by pointing and clicking on a table of contents item or chapter topic. There's also a Search command to find every instance of a particular word or phrase.

Quicken's Home Inventory User's Guide has other nifty features. To mark important passages, click on the Define Bookmark icon. You can return to a bookmark simply by selecting Goto Bookmark. You also can attach a personal note to any User Guide topic by choosing the Annotation feature. Print options output a copy of just the current topic or an entire chapter. The Copy function sends selected text to the Clipboard for pasting in another Windows application.

If you follow the steps outlined in the Home Inventory User's Guide, you can set up a very basic household inventory in just a few hours. The procedure is virtually painless. Like other modules in this program, Home Inventory uses a checkbook-like register to organize details. You enter information in special fields, choosing items from pop-up lists whenever possible. Editing tools let you customize the data. Special calculators help to compute resale figures and property values.

Unfortunately, you cannot enter information in the Home Inventory register as you read the User's Guide. You also cannot shrink the size of the Guide window so that both it and the Home Inventory window appear on-screen simultaneously. However, it's not difficult to switch between the User's Guide and Inventory windows when both are up and running. Simply perform one of the following steps:

1) Press CTRL-ESC to bring up the Windows Task List. Select the desired application, then press ENTER.

2) Click on the Control Menu box (the one with the minus sign) in the upper-left corner of the current application window, then select Switch To. When the Task List appears, select the desired application, then press ENTER.

3) Press ALT-ESC to cycle through the currently running applications.

4) Hold down the ALT key and press the TAB key until the title of the desired application appears, then release the ALT key.

You may not even need to consult this User's Guide because Quicken provides context-sensitive online help for inventory features from within the Inventory module as you work. Just click on the Help button in the Home Inventory iconbar. When the pointer changes to a "?" you can click on objects (such as dialog boxes, icons, or menu bar items) for more information. Or you can click on the Help icon for a "Quick Start" overview of Inventory features. You'll find directions for entering, printing, verifying, and editing home inventory data, plus operating and problem-solving tips. If the Help window disappears from view while you're working in the Home Inventory module, hold down the ALT key and keep pressing the TAB key until the Help window reappears.

The Home Inventory User's Guide is available in *Quicken*'s Help menu.

Entering the Nitty Gritty

As previously mentioned, you can launch Quicken's Home Inventory application by selecting it from the Add-Ons menu. Clicking the Inventory icon on Quicken's iconbar also gets you started. Once the Inventory module is up and running, Quicken gives you a choice of data-entry methods. Log entries either by location (i.e., room by room) or by category (groups of items such as appliances, clothing, electronics, furnishings, and jewelry.) The program default is by location, but you can change to the category method by selecting By Category from the Inventory View menu. If you enter inventory on a location basis, you may end up doing a more thorough job because you only have to survey items in a self-contained area. Also, if you do only one location per session, you'll probably be less likely to skimp on the details.

Quicken actually uses a combination of both methods to organize data. For example, if you catalog your possessions by location, you still must enter item information on a category-by-category basis (i.e., all appliances in the bedroom, electronics, furnishings, linens, decorations, art, etc.). You repeat this process for other locations around the house. Similarly, if you choose to enter data by category, Quicken helps you think about these categories on a location-by-location basis (e.g., all furnishings in Bedroom 1, Bedroom 2, Bedroom 3, Dining Room, Laundry Room, etc.).

To minimize keystrokes and data-entry errors, Quicken provides timesaving pop-up lists. You'll find one for locations and one for categories, plus a list of suggested items for each

inventory category. For example, suppose you've decided to inventory the things in your bedroom. To catalog your favorite bedroom chair, choose By Location from the View menu, then select Bedroom 1 from the View By Location pop-up list. Next, choose Furnishing from the Item Category column pop-up list. Finally, highlight "chair" on the list of Suggested Items for Furnishings, then click on the Add Selected Item button. Quicken automatically enters "chair" in the first empty Item Description field.

Similar kinds of timesaving data-entry options are available in category mode. A View by Category pop-up list (with a list of suggested items) organizes your thinking around types of inventory items. An Item Location pop-up list enters inventory information on a location-by-location basis. However, any inventory item can be customized to reflect your personal situation.

For example, if there is more than one chair in your bedroom, Quicken lets you give each one a customized name so that you can instantly differentiate one from the other. Click on the Item Description field containing the bedroom "chair," then type **wingback**, **Shaker**, **comfortable**, or some other appropriate description. Next, enter values for replacement and resale, then click Record.

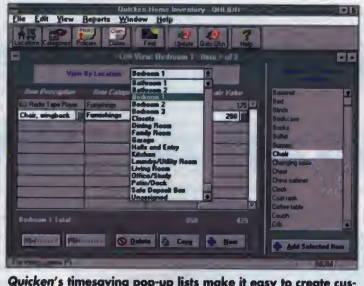
Quicken offers more timesaving data-entry options. You can use the "+" (plus) or "-" (minus) keys on your keyboard's numeric keypad to increase or decrease replacement and resale values by $50 increments. If you need to make a quick calculation, click on the calculator icon, and Quicken's electronic calculator pops up on-screen.

Setting Preferences

Initially, Quicken's calculator automatically rounds off values to the nearest whole number, but you can see exact totals by modifying the currency fields display. Choose Preferences from the Edit menu, then click on the Display tab in the Preferences dialog box. Make sure "Show cents in currency field" is selected. Also, Quicken initially sets the resale value of an inventory item to 50% of its replacement cost. By clicking on the Suggested Item List tab in the Preferences dialog box, you can specify a different percentage.

To enter inventory information about an item that isn't available on a pop-up list, click the cursor on a blank Item Description line. Next, type in the name of this new item. Tab to the Replace Cost field and insert a value. Then tab to the Resale Value field and enter a value. When you're done, click on Record. You can enter inventory items in any order because an Alphabetize Register option in the Edit Menu reorganizes all entries alphabetically.

If the locations on Quicken's pop-up list don't match your needs, click on the Locations button to add new items to the location list or to edit items already listed. For example, you can change the Bedroom 1 location to read Master Bedroom. Just highlight Bedroom 1 in the location list, then click on the Edit button. When the Edit Location dialog box appears, type Master Bedroom in the Location field. Then click OK. Similarly, you can change Bathroom 1 to read Upstairs Bathroom, Master Bathroom, etc. You also can click on the Locations button to delete items from the Locations pop-up list.



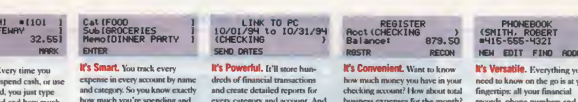
***Quicken's* timesaving pop-up lists make it easy to create customized, detailed inventories.**

Details, Details

Quicken's Home Inventory add-on gives you the option of entering more extensive information about an item than just replace costs and resale values. But to do so, you must switch from List View to Detail View. Select Detail View from the Inventory Manager's View menu, or simply click on the Detail View button that appears in the currently active Item Description field. This brings up the Detail View dialog box for that item. You'll enter item information regarding make and model, serial number, and purchase location and date. Detail View is also where you store data about the item's receipt, appraisal, or repair records. Such information will prove invaluable in the event of an insurance claim.

Detail View lets you assign an insurance policy type to each inventory item. Unless you specifically note otherwise (i.e., access the Preferences option in the Edit menu to make changes), Quicken assigns all inventory items to your homeowner/renter insurance policy. You can specify information about this policy by clicking the Inventory's Policies button in the iconbar or selecting Policy List from the View menu. Once the Policies dialog box

The Detail View dialog box lets you record details about each of your possessions, including purchase location and date, repair records, and appraisals.



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It's Convenient. Want to know how much money you have in your checking account? How about total business expenses for the month? Just reach into your pocket or purse and check your balance.

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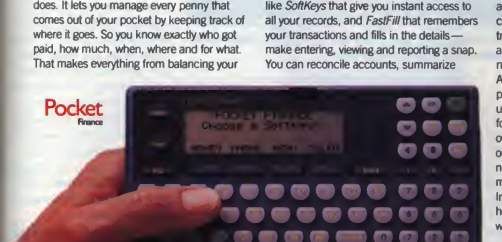

All your financial information, all in one place.

Pocket Finance can hold over 800 different financial transactions—in an unlimited number of accounts. You don't dread dragging home a bunch of receipts to enter into your computer later because you enter your transactions as they happen. And by creating your own personal categories, you quickly see how you spend your money.

It's very small. It's also very smart.

A lot of really bright people spent a lot of time thinking Pocket Finance all the way through. It's simple and straightforward, but still incredibly powerful. Easy to use features—like *SoftKeys* that give you instant access to all your records, and *FastFill* that remembers your transactions and fills in the details—make entering, viewing and reporting a snap. You can reconcile accounts, summarize business or personal income and expenses by category, and figure out your total financial picture in less time than it takes to tell you about it. What more could you want? How about computer compatibility.

Pocket Finance is Quicken® Compatible.

Already using a personal finance program like Quicken? No problem. Whenever you want, just use Pocket Finance's optional serial link cable to send all your transactions right to your computer. You don't have to reenter anything because Pocket Finance is totally compatible with every major personal finance program that imports QIF files.

It fits everywhere, including your budget.

Actually, you can find other machines that do what Pocket Finance does... for more than $500. But you'll never find one—at any price—that's as smart, simple and convenient as the $99 Pocket Finance. Just try it. What can you lose? After all, we've got a rather famous no excuses, no apologies, no problem 30-day money back guarantee. And you don't do that unless you're selling a pretty darn good product. One that's perfect for a small business owner, busy professional or someone who simply needs a little help managing their money. In fact, you'll wonder how you ever got along without it.

Pocket Finance is Quicken compatible!

Say, what's that in your pocket?

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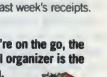

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appears, highlight the policy you wish to modify, then click Edit. The Edit Policy dialog box appears, enabling you to enter detailed information about a specific insurance policy.

You also can use the Policies dialog box to modify your insurance policy list. Click New to add a new policy, or Delete to remove an existing policy. Once you enter information about policy coverage, Quicken keeps a running total of the difference between coverage and replacement costs. If this difference is negative (i.e., if it will cost you more to replace the items than the insurance carrier will pay), consider increasing your insurance coverage.

The Edit Policy box lets users enter detailed information about each of their insurance policies.

Printing Reports

Quicken and its Home Inventory module both have robust report-generating capabilities. For example, if ever you need to determine your net worth (the difference between your assets and your liabilities), Quicken will figure in the resale value of your possessions if you select Update Quicken from the File menu, or click the Update icon in the Inventory iconbar. In addition, the Home Inventory Reports menu offers six report options. Any report may be previewed on-screen or printed.

Choose Inventory Value Summary for a comprehensive listing of all your possessions organized by category, location, or insurance policy. No matter which format you choose, Quicken displays a description of each inventory item, detailing replacement cost, resale value, and purchase date and price. This report's bottom line generates a grand total for inventory replacement costs and resale values.

Select Inventory Detail for a detailed summary of a particular set of items (or all items) in your inventory. This is the report you would use to track your valuables that may have appreciated in value since the last report. A Select Items button lets you highlight specific items in your inventory for this report. A status line keeps you informed of how many items you've selected from your total inventory.

Two Home Inventory reports analyze your insurance policy information. Insurance Coverage Summary summarizes what you own and how much it's worth. You'll be able to compare these totals with insurance coverage on a policy-by-policy basis. You may have to purchase an insurance policy endorsement or "rider" to insure special items like jewelry, expensive cameras, valuable coin collections, or computers. Items covered by riders are not automatically tracked by Quicken. You must manually enter this information.

Choose Insurance Coverage Detail to obtain a detailed report of selected (or all) items covered by a specific policy. Like the Inventory Detail report, it sports a Select Items button so you can manually highlight every item that you want to include. Homeowners will find the inventory descriptions helpful when filing an insurance claim.

Quicken's Home Inventory module can be an invaluable assistant if you need to file an insurance claim.

Two additional report options are listed in the Reports menu: Insurance Claim Summary and Insurance Claim Detail. These options are dimmed, or unavailable, until you provide Quicken with actual insurance claims information. If you need to submit a claim, Quicken will help. Just click the Inventory's Claims button. A Claim dialog box will appear asking for specific information. Describe the claim by name, amount claimed (i.e., total replacement and repair costs), date submitted, amount received from the insurance company, and the date you received payment. An Items button takes you to the Select Items for Insurance Claim dialog box. When you click on any item covered by this policy, Quicken includes it in a claim. A Select All button adds all items to the claim description, with totals for replacement or repair costs. The printed report is detailed enough to send to your insurance provider.

Your personal net worth may not be enough to get you listed among the rich and famous. Your furniture may be just an eclectic collection of odds and ends. But as the saying goes, your home, condo, or rented apartment is still your castle. Quicken's Home Inventory module can be an invaluable assistant if you need to file an insurance claim. It keeps detailed records of all your possessions, determines whether you have ample coverage, and organizes information in a format that is easy to read and understand. ●

by Carol S. Holzberg, Ph.D.

Products Mentioned:

Quicken 8 (DOS), $39.99
Quicken 5 (Macintosh), $49.95
Quicken 4 for Windows (diskette), $39.95
Quicken 4 Deluxe for Windows (CD-ROM), $59.99
Intuit
(800) 624-8742
(415) 322-0573

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PIMs — Your Key To An Organized Life

Personal Information Managers (PIMs) do what their names suggest. They provide electronic tools to manage contacts, activities, and time. All PIMs include a calendar system for scheduling appointments, an address book for telephone numbers, and a "To-Do" list for tracking planned events. Better products integrate this information so data entered for an appointment or planned activity can be linked to a name in the address book. PIMs designed for operation on a local-area network (LAN) typically support group scheduling, simultaneous file access, shared address books, and messaging.

PIMs offer several advantages over the paper-based planners they mimic. First, PIMs typically have a built-in alarm system to remind you of scheduled appointments and upcoming calls. Second, they provide instant access to information through electronic search and retrieval. Finally, some have automatic dialing, calling names in the address book if your computer is connected to a modem. Usually, PIMs let you log information about a call during the conversation. An electronic stopwatch times the event for billing purposes.

This month, we examine PIMs for Macintosh, DOS, and Windows. Each one helps put your life in order while rescuing your desk from its growing collection of business cards, Post-It notes, and calendar scribbles. All PIMs have print capabilities, enabling you to take information with you whenever you leave the office.

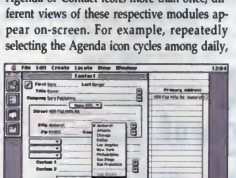
NOTE: All prices listed here are suggested retail prices unless otherwise noted.

Claris Organizer, v1.0

While *Claris Organizer* (Macintosh) is a relative newcomer to the PIM playing field, the product has much to offer. This application takes up just 660 kilobytes (KB) of hard disk space and requires only 1200KB of random-access memory (RAM) to run. You'll find four separate but integrated modules—an Agenda to manage schedules, an address book for Contacts, a Notes section for comments, and a Task manager for to-do lists. Excellent importing facilities let you bring in files from other Macintosh PIMs. Claris Organizer (CO) does not support group scheduling, and you can open only one file at a time.

This PIM has an intuitive interface. When you first run it, a blank Agenda (Calendar) page displays the current day. You merely double-click on a particular time slot to enter information about a new appointment (alarm reminders are optional).

Next to the open window is a palette of four icons. Each icon provides click-on access to a different CO module. If you click on the Agenda or Contact icons more than once, different views of these respective modules appear on-screen. For example, repeatedly selecting the Agenda icon cycles among daily, weekly, and monthly calendar views (CO does not have an annual calendar). Contact, Task, and Notes modules display information in either list view (multiple entries) or detail view (individual records).



Entering contact information is easy with these pop-up lists on Macintosh's *Claris Organizer*.

Entering contact information is a breeze because CO has editable pop-up lists for several data fields. An automatic dialer calls a selected contact, but CO lacks a stopwatch to time activities. You can set up a connection between a CO item and any appointment, task, or note so more information about a particular entry is available by clicking the mouse. You can even link one contact to another. CO keeps you advised of a link by placing a picture of a paper clip next to the item. Flexible print options output customized copies of your calendar, address book, notes, and task lists in various formats, including labels, envelopes, and fax cover sheets.

CO provides extensive online help, which is searchable by topic or keyword. The skimpy printed manual is well-written but lacks an index. Unfortunately, CO does not install itself as an item on the menu bar, so you can't hotkey to Organizer while working in other applications. If you want easy access to CO data, place an "alias" of CO in the Apple menu.

Claris Organizer, $69
Claris Corporation
(800) 628-2100
(408) 727-8227

Day-Timer Organizer

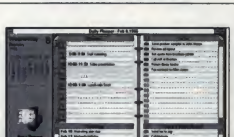
Day-Timer Inc. (the company behind the popular printed Day-Timer planners) recently released *Day-Timer Organizer* (DOS, Windows). Data screens in the Windows edition more closely resemble the familiar paper-based Day-Timer planner, but this review highlights the DOS version of the Day-Timer Organizer (DTO). A DTO network version (purchased separately) supports group scheduling, office E-mail, automatic notification of Schedule and Task assignments, plus shared contact databases. Customers who purchase the single-user version can share information or exchange data with network-formatted DTO databases via DTO's network emulation mode.

DTO's single-user version offers calendar, contact, and task management tools. A convenient Quick Reference sheet summarizes frequently used program commands. Unfortunately, DTO does not offer context-sensitive online help from within every screen, and sometimes the help that it does offer is very limited.

The program can run either standalone or as a 22KB application in Memory Resident mode. When loaded into memory, you can access several DTO functions while working in other programs. These include DTO's alarm/urgent message reminder, telephone dialer, calculator, and stopwatch. DTO even transfers a contact's address directly to an open word processor file.

The single-user version stores four types of data: Schedule, Tasks, People, and Notes. You can view information for each of these items individually. For example, you can call up the Daily View to see your appointments and reminders for a specific day or choose People View to search for names, addresses, and phone numbers. A Global View displays Schedule, Task, and People data simultaneously for easier search and retrieval.

DTO has several convenient features. It displays the current day, date, and time whenever it's on-screen. It keeps you posted of potential scheduling conflicts. A Security feature lets you set User and Database passwords to safeguard sensitive information. A Cyclical Date option schedules recurring events with or without an alarm reminder. Alarms appear as an on-screen message combined with an audio alert. Alerts sound every five minutes until you take action. You can press the spacebar to put the alarm into a 15-minute snooze mode. A pop-up Stopwatch lets you time an event.



The *Day-Timer Organizer* features a Daily Planner that lets users keep track of daily appointments.

For the most part, DTO works quickly and flawlessly. It prints reports in a variety of formats. However, getting it to QuickDial a number via modem may require a call to Day-Timer's technical support. You must enter the appropriate initialization string in the Telephone Preferences setup dialog box, but if the one supplied does not work with your modem, the manual makes no alternative suggestions. In addition, DTO's modem setup does not let you determine the number of redials the program will attempt when making a call, and once the modem is activated, there's no hang-up command. Technical support never returned our call!

Day-Timer Organizer, $139
Day-Timer Technologies
(800) 362-9927
(415) 572-6260

Day-to-Day's Contacts module is optimized to manage personal and business data.

Day-to-Day

Day-to-Day (Macintosh, Windows) consists of a series of standalone applications to manage contacts and organize thoughts. Day-to-Day for Macintosh includes three modules: Calendar, Contacts, and Notepad. These may be purchased separately or in a Complete Organizer package. All modules work well together, providing tools for appointment scheduling, contact management, and to-do list tracking.

Day-to-Day (Windows) contains just two standalone (but integrated) applications: Contacts and Notepad. However, Portfolio Software Inc. promises that a Windows-compatible Calendar module is in the works. Notepad files may be linked to a Contacts record either by clicking on the Notepad icon in the Contacts Toolbar or selecting the Link Notepad Notes command from the Record menu.

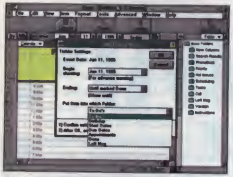
Day-to-Day's Contacts (DDC) module is optimized to manage personal and business data. It can be launched from Windows by clicking on its Program icon or accessed by a hotkey from other applications. DDC features a graphical Toolbar with click-on icon shortcuts but has no pop-up identification labels when you touch an icon with the cursor.

The Contacts window has 22 information fields. Several fields (e.g., City, State, and ZIP) have associated pop-up lists to minimize data entry. Contact files are listed either by business or by the contact's last name. Unlike the Day-Timer Organizer for DOS, DDC's automatic dialer actually works. Extensive printing options let you output information to a variety of preformatted or custom address books, cards, labels, or envelopes. A special merge option automatically launches your Windows word processor and sets up the address, salutation, and closing for your letters.

Day-to-Day Contacts, $49.95
Day-to-Day Notepad, $34.95
Day-to-Day Complete Organizer, $69.95
Portfolio Software Inc.
(800) 329-8632
(802) 434-6400

ECCO

ECCO Professional v2.0 (Windows) is not for casual users or computer novices. Even the installation program had questions that sent us scrambling for the printed manual. For basic



The Add Tickler screen on *ECCO Simplicity* and *ECCO Professional* lets you set up a message that reminds you of upcoming appointments.

information management, try *ECCO Simplicity v 2.0* (Windows) instead. This entry-level PIM sports a subset of Professional's features. You'll find a calendar to manage schedules and appointments, a telephone book, a "tickler" section for reminders and to-do's, plus an alarm system to warn you of upcoming events by message, sound, or launching a document, application, or batch file.

Simplicity's Toolbar adds buttons for commonly used program functions (including icons that launch other programs or open other files). You can schedule activities as recurring events, have the program dial a number for you, and keep notes on telephone calls.

ECCO Professional has all of Simplicity's basic information management tools and more. For example, if you select Show Full Menus from the Tools menu, Professional adds an Advanced menu to the program's menu bar. This menu lets you create special folders where you can place related information for easy access. Any item may be placed in several folders for cross-referencing.

In addition, Professional enables you to customize various information views with user-definable fields, such as pop-up lists, check mark columns, dates, text, and numbers. You can time and date entries and set up special filters for information in any column, directing Professional to display only selected data, such as completed to-do's or phone calls. Professional also creates special timesaving forms for automated data entry.

While Professional has a steep learning curve, several features offer assistance. A help function describes the item under the mouse cursor and provides operating instructions. Helpful hints appear on-screen as you select a program function. A Quick Tour overview presents a five-minute look at Professional's Calendar, Phone Book, Outlines, and Folders. You also can obtain context-sensitive help for menu commands and dialog boxes, as well as print a 40-page Professional Tutorial for reference.

Both Simplicity and Professional follow an outline metaphor for managing projects, activities, and general information. The Outline Notes function comes in handy if you're creating meeting agendas. You can rearrange items within an Outline view (or from Outline to another view) simply by dragging and dropping. A Search function looks for text anywhere in an ECCO file.

If your computer is connected to a network, Simplicity and Professional provide strong group scheduling capabilities. Multiple users can share calendars, phone books, folders, and other files. Both PIMs support file synchronization for shared files over a network, plus file synchronization via E-mail from a remote location.

ECCO Professional v2.0, $200
ECCO Simplicity v2.0, $80
Arabesque Software Inc.
(800) 457-4243
(206) 869-9600

InfoCentral

This entry-level PIM for Windows uses an outline metaphor to manage contacts, time, and documents in user-configured iBases (information databases). It comes with several timesaving templates and shortcuts to simplify data entry. Four prepared (but customizable) iBases provide information on computer-based companies, consumer-oriented companies and services, international business travel, and fine wines. Flexible print options output database information in a variety of paper sizes and formats.

If your computer is connected to a network, Simplicity and Professional provide strong group scheduling capabilities.

Novices will appreciate *InfoCentral's* (IC) "QuickTour." The first time you use the program, a tutorial menu appears with a list of topics. You'll become familiar with the program's interface, how to enter information, and how to link or make connections among iBase people, places, things, and events. IC also provides helpful assistance in the form of three electronic Coaches for starting a new iBase, locating information, and importing data from another application.

This PIM sports a Toolbar with click-on shortcuts to frequently used program commands. When you rest the cursor on an icon, its description appears on-screen. IC's interface and several of its features are designed to resemble applications in WordPerfect's Perfect Office suite.

IC organizes and relates "objects" entered in various mini-databases. Objects can be accounts, people, events, meetings, telephone calls, etc. An initial list of object categories appears in IC's InfoPad window. You create a new object by clicking on the Add button and selecting an object category from the Add New Object dialog box. IC presents the information dialog box for that category.

Once you enter category data, you can link the new object to another object. For example, you need only type company information once because you can connect this information to employees by pointing and clicking. Selecting an object displays items related to it.

You can connect IC objects with files or documents in other Windows applications. Just drag and drop the file you wish to link from the Windows File Manager to an object on the IC InfoPad. Once you establish a connection, double-clicking on the linked document will open it in the originating application. You also can use IC to send a letter to an iBase contact.

Simply select the person's name (use the FastFind icon) and choose the Create Related File button on the Toolbar. After IC determines which word processor you want to use, it launches that application and opens a file. It then automatically inserts the current date, addressee's name and address, and the letter's salutation and closing.

IC's calendar has weekly, monthly, and annual views to help you organize your day. You can see scheduled appointments, link appointments to contact data, and attach notes. You also can view entries in your iBase by

categories, including clients, mailing lists, and calls to make. A built-in alarm system notifies you of an upcoming appointment. A dialer calls contacts that are logged in to your databases. IC's Elapsed Timer times phone calls or tracks how long you've been working on a project.

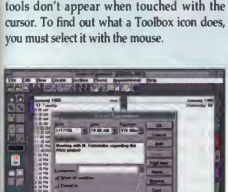
InfoCentral v1.1, $99
WordPerfect Corporation
(800) 451-5151
(801) 228-9938

Lotus Organizer 2.0

This heavy-hitting PIM requires more than 10MB of hard disk space for a complete installation, but it comes with several tools to manage contacts, appointments, to-do list items, and phone calls. The latest release offers enhanced support for group scheduling on a local-area network (LAN), a full-month calendar view, a new telephone section that tracks incoming and outgoing calls, a file-sharing option for multiple users, plus many other features.

Lotus Organizer 2.0 (LO) has pull-down menus and a SmartIcon toolbar that can be customized to include frequently used commands. Rest the cursor on an icon, and its pop-up label appears.

LO employs a notebook metaphor to organize information. Its startup screen displays an annual calendar with the current day highlighted. Click-on tabs provide instant access to other sections in your notebook, such as your to-do list, address book, telephone log, project planner, Notepad, and Anniversary list (important dates). Other program icons are displayed in a Toolbox down the left side of the screen. Unfortunately, pop-up labels for these tools don't appear when touched with the cursor. To find out what a Toolbox icon does, you must select it with the mouse.



In the *Lotus Organizer*, you're able to enter scheduling information in this Create Appointment dialog box.

Click on the current date icon in the Toolbox, and the current day's Calendar appears. Click on this date with the right mouse button to view the current day in the Calendar, Planner, or Anniversary sections. LO provides daily, one-week, two-week, and monthly calendar views. It also lets you schedule an appointment by clicking on a Calendar page. You enter scheduling information in the Create Appointment dialog box. LO will warn you of scheduling conflicts and has an audio alarm to warn of upcoming events.

You can schedule repeating appointments or move an appointment from one time or date to another by dragging and dropping the item. Click on the Address tab to look up contacts in the address book. If you double-click on a letter tab, the Create Address dialog box appears for information about a new contact. Once a phone number has been entered in the Address Book and the organizer is opened to that contact's entry, select Quick Dial from the Phone menu to dial the number. LO also lets you log information about an incoming call, providing a stopwatch to track the call's duration.

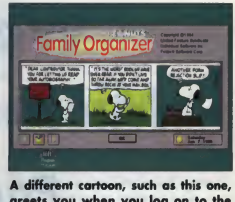
LO is easy to use, allowing you to print data section by section in a variety of layout styles and paper sizes. The brief user's manual is well-written but without an index. You'll find extensive general and context-sensitive online help but no QuickTour tutorials to introduce program features. A brief Administrator's Guide provides instructions for installing and using Organizer for group scheduling on a network.

Lotus Organizer 2.0, $99
Lotus Development Corporation
(800) 343-5414
(617) 577-8500

Peanuts Family Organizer

Start your day off with a smile and keep the "blue meanies" at bay with the *Peanuts Family Organizer* (Windows), an entry-level PIM for the whole family. Each day it greets you with a different Peanuts cartoon. It then takes you to the Family Schedule window where you can view the current day, date, and time and click on icons to plan your day, week, month, or year. You'll also be able to see scheduled appointments, check messages, or verify an address.

Peanuts Family Organizer (PFO) tracks family whereabouts with schedules for up to



A different cartoon, such as this one, greets you when you log on to the *Peanuts Family Organizer*.

12 people. Each member is identified by a user-selected Peanuts character icon, making it fun for young children. For the most part, a status bar at the bottom of the screen describes a button whenever you touch it with the cursor.

You can schedule events, add notes to events, be warned about schedule conflicts, set an alarm to remind you of an event, keep to-do lists, and copy items from one family member's schedule to another. A Repeat button automatically schedules regularly occurring events at a specified interval.

Click the Message Center to send mail to family members. A special icon appears next to that person's name to whom the message was sent. The address book keeps track of friends and family. PFO won't let you dial a number directly from the program, but it does allow you to have a personal as well as a family address book. If you want an inexpensive way to introduce kids to PIMs and keep the family on schedule, this handy organizer juggles all the details.

Peanuts Family Organizer, $19.99 (Street price)
Individual Software
(800) 822-3522
(510) 734-6767

One final note: Micro Logic's popular *Info Select* (DOS, Windows) PIM arrived too late to be included in this roundup. A major upgrade for the Windows version is expected this month. It will offer improved database capabilities, plus increased support for laptops and networks. For more information, call Micro Logic at (800) 342-5930 or (201) 342-6518. ●

by Carol S. Holzberg, Ph.D.

Working With Microsoft Word 6.0

Part I: The Basics

When you move into a new house, it takes a while before you begin to feel comfortable. It isn't until the majority of the boxes are unpacked and most of the pictures are hung that you begin to feel "at home." The same is true when you install a new software package. It usually takes a while before you feel at ease when you work with it.

To help you feel more comfortable with Microsoft Corp.'s *Microsoft Word* 6.0, we're going to spend the next few months showing you around the program. By the end of our three-part series, you'll feel completely at home in Microsoft Word.

To get you acquainted with Word, we'll start by exploring the Word window—the screen you see when you double-click on the Word icon.

The Word Workplace

Every time you start Word, you'll be greeted with a Tip of the Day, an ever-changing hint or reminder about how you can use Word productively. After reading the tip, click the OK button. If you'd prefer not to see these hints, click the Show Tips at Startup box in the Tip of the Day window so there is no *X* in it. If you'd like to see more Tip of the Day hints and reminders, you can view tips by choosing Tip Of The Day from the Help menu.

The main Word window has several elements. These include the title bar, the menu bar, the toolbars, the ruler, the scroll bars, the

status bar, and the insertion point. We'll talk about each of these in detail.

The title bar. The title bar is the bar at the top of the Word window. It tells you the name of the file you're working on. Note that if you haven't yet named the file, the title bar will say *Microsoft Word - Document1*.

The menu bar. The menu bar is located directly beneath the title bar. This is one place from which you can choose commands in Word. Some of these commands carry out an immediate action. Others display a **dialog box**, which pops on-screen and allows you to select options that control how the command is carried out. The menu categories are File, Edit, View, Insert, Format, Tools, Table, Window, and Help. When you click on any one of these, a drop-down list of commands is displayed. To choose a command, highlight the command in the drop-down list with your mouse by clicking on it. Following are some things to keep in mind when working with the menu bar commands:

- An ellipsis after a command on a drop-down list means that the command has a dialog box.
- A checkmark next to a command indicates that the command or option is active, or "on."
- Dimmed commands can't be selected with a mouse and are not available with the current document's setup.
- You can bypass the menu bar for some commands by pressing shortcut keys on the keyboard. The commands with a shortcut-key option display the shortcut keys behind them on the drop-down list.
- You can close a drop-down list without choosing a command by clicking the mouse button when the pointer is located outside the menu list.

The toolbars. With the help of your mouse, Word's toolbars give you quick access to the program's most commonly used commands. There are several toolbars in Word. When you first open the program, however, there are two. Both are located just below the menu bar. The **Standard toolbar** is the one on top, and the **Formatting toolbar** is the one on the bottom. Each toolbar has buttons that can be "depressed" with your mouse. When you click on a button, the corresponding command is carried out.

You don't have to memorize which command will be carried out when you press a button. When you point to a button with the mouse pointer, Word displays its function just under the pointer in a box called a **ToolTip**.

The Word Workplace includes the title bar, the menu bar, the toolbars, the rulers, the scroll bar, the status bar, and the insertion point.

The rulers. The horizontal ruler is located under the toolbars. The vertical ruler is on the left side of the screen. You can use the rulers to set tab stops and indents, but we'll tell you about that later. Like the toolbars, you can display and hide the rulers. To do this, choose Ruler from the View menu. When there is a checkmark next to Ruler, the rulers are displayed. Click on the Ruler option to select and deselect it.

The scroll bars. There are two scroll bars to help you get around your document. The vertical scroll bar is on the right-hand side of the screen. The horizontal one runs across the bottom. Moving the box inside the scroll bars moves the view that you see on-screen. For example, to see the end of your document, move the box inside the vertical scrollbar to the bottom. You can move the box by clicking on it and dragging it or by clicking the arrow on either end of the bar.

You can save time and labor by selecting a template.

The status bar. The status bar, which gives you information about the document you're working on, is found at the bottom of the Word window. The task you're performing determines what appears in the status bar.

The first section of the status bar displays information about the text visible on-screen. Page tells you which page of the document you have on-screen. Sec tells you which section of a document you're in. (You can break a document into sections by using the Break command on the Insert menu.) The numbers to the right of the Sec area, like "2/3," indicate that you are on page two of a three-page document.

The second section of the status bar explains the position of the insertion point (the cursor) on the page. The At number tells you how far from the top of the page the insertion point is located. The Ln number tells you on which line of text the insertion point is located. And the Col number tells you the character position within the line of text. *(NOTE: The insertion point information only appears on the status bar when the insertion point is visible on the screen.)*

The insertion point. As you may have guessed, the insertion point is the point where you can enter text—it's the blinking line that appears at the beginning of a blank page when you first open a document.

Now that you have an idea of the layout of the Word window, let's learn how to create a document.

Creating A Document

Your first step is to create a new document. To do this, click the New button on the Standard toolbar (the blank page with the upper-right corner turned down) or select New from the File menu. A New dialog box will appear.

If you're creating a common, formatted document like a memo, letter, report, or resume, you can save time and labor by selecting a **template** for the document. A template is a blueprint for a document, outlining how the text will be formatted or how the page will be designed. Word provides 24 templates, which are listed in the New dialog box. To open a document template, highlight the template name and click OK. If you just want a blank window with no formatting, click on the Normal option and click OK.

NOTE: To decide if you want to use a template, you may wish to preview the template. Do this by selecting Style Gallery from the Format menu. Select a template from the Template list, click in the option button in front of the Example option under Preview. The selected template style will appear in the window on the right.

Once you select a template or the Normal option, you may begin entering data. Position the insertion point by moving your mouse pointer to the location on the screen where you want to begin typing. Click the button, and the insertion point will start blinking at that location. Now you can begin typing the text.

When entering your text, keep the following in mind:

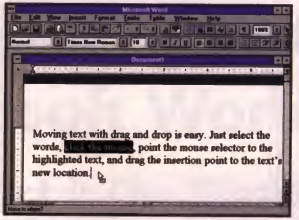
- You'll probably want to type in **Insert** mode most of the time. This mode lets you add words between words you've already typed. However, there may be occasions when you'll want to type over words after a certain point. To change from Insert to Typeover mode, double-click the OVR button on the right side of the status bar. (To return to insert mode, double-click OVR again.)
- Word automatically wraps text to the next line. Therefore, the only time you'll want to hit ENTER is when you want to begin a new paragraph.
- Word keeps track of the text you've recently typed. To repeat this text, use the Repeat command by placing the cursor where you want the repeated text and choose Repeat Typing from the Edit menu.

Editing Your Document

The beauty of computers and word processing packages is that you can edit your documents. Revising text in Word is quite easy. In this section, we'll give you a few basics of editing.

Deleting text. To delete a word or a group of words, select the text by highlighting it with the mouse. Then press the DELETE or BACKSPACE keys. You also can insert the cursor just before a word you wish to delete and click the DELETE key to delete the word a character at a time. Likewise, you can insert the cursor after the word and click the BACKSPACE key.

If you make a mistake when deleting text, click the Undo button on the Standard toolbar (the one with the arrow that swoops to the left) or choose the Undo Typing command from the Edit menu.



Moving text with the drag-and-drop method is easy and useful; Word automatically drops the text in its new location.

Moving text with the drop-and-drag method. To move text, highlight the words you wish to move. Let go of the mouse button, move the cursor slightly until it turns into an arrow, click on the mouse button, and drag the dotted insertion point to the selection's new location. Release the mouse button, and Word will move your selected text to this location.

Copying text with the drop-and-drag method. To copy text to another location, follow the instructions for moving text, but hold down the CTRL key when the cursor turns into an arrow. Hold the key until the dotted insertion point is at the new location.

Moving and copying text with Cut, Copy, and Paste. To move or copy text with the command method, select the text with your mouse. To move the selection, click the Cut button on the Standard toolbar (the one with the scissors on it) or select Cut from the Edit menu. To copy the selection, click the Copy button on the Standard toolbar (the button with two documents on it) or select Copy from the Edit menu. Position the insertion point where you want the text copied or moved. Click the Paste button (the one with the clipboard and the document) from the Standard toolbar or select Paste from the Edit menu.

Word provides ways to locate specific word usages.

Every time you use the Cut or Copy command, the selected text is copied to the Windows **Clipboard**, a temporary holding area for text and graphics. By copying the text to the Clipboard, you can paste the same text in several locations, or you can paste it into other Windows program documents.

NOTE: When you cut or paste text in Word, the program adjusts the spaces remaining in a sentence. So, for example, if you delete a word before a period or a comma, Word removes any spaces between the previous word and the punctuation mark.

Inserting symbols. There may be times when you want to insert a symbol, like the bullets we used earlier in this article. To insert a symbol, choose the Symbol command from the Insert menu. The Symbol dialog box for the current font will appear. To select a symbol, click on it and click the Insert button. If you don't see a symbol that you want to insert, you can change the font by selecting another one from the scroll-down list in the Font box.

Now that you know some of the basics of editing, let's look at some of Word's editing tools.

Find & Replace

In case you've spelled something wrong throughout a document or just don't remember if you discussed a certain topic, Word provides ways to locate specific word usages.

Finding text. To find a word, choose the Find command from the Edit menu. In the Find dialog box that pops on-screen, type the word(s) you're looking for in the Find What box. Then click the Find Next button to begin the search. In case you've mentioned the topic more than once, Word lets you edit your document while keeping the Find box open, thus making it easier to find the other uses of the word.

Replacing text. If you want to change all uses of one word to another word or group of words, you can tell Word to replace all the occurrences. To do this, choose Replace from the Edit menu. Type the text you want to replace in the Find What box in the Replace dialog box. Type the replacement text in the Replace

With box. Choose the Find Next button to begin the process.

When Word finds the text, you can:

- Click on the Replace button to replace the text and find the next usage.
- Click on the Replace All button to replace every use of the word without confirmation.
- Click on the Find Next button to ignore the first occurrence and find the next one.

AutoCorrect & AutoText

Word has a special feature called AutoCorrect or AutoText that lets you store frequently used text or graphics and quickly insert them into your documents. When you store data as an AutoText entry, you can retrieve it by clicking a button, typing a few keystrokes, or choosing a command. You can use AutoCorrect to insert these items as you type without any other key selections. For example, if you type the words "as soon as possible" a lot, you can save them as an AutoCorrect entry called "asap." Then when you type **asap**, Word will replace it with **as soon as possible**.

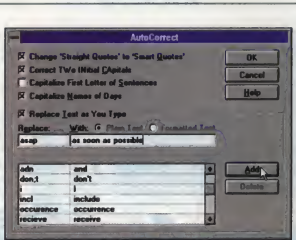
To create this entry, choose AutoCorrect from the Tools menu. An AutoCorrect dialog box will appear. Type a name for the entry in the Replace box, and the replacement word(s) in the With box. Then click the Add button and hit OK.

To create an AutoText entry for less frequently used phrases or phrases you don't want Word to enter for you automatically, select the text or graphic in a document and click the AutoText button on the Standard toolbar (the one with the hand and the keyboard). Type a name for the entry in the Name box and choose the Add button. Once you've created this entry, insert the phrase by typing the AutoText name in your document and clicking the AutoText button. (If you don't remember the name of the entry, choose the AutoText command from the Edit menu and find the entry in the list that appears in the dialog box.)

Spell Check & Other Tools

There are three editing and proofing tools that you can use to greatly improve the writing and readability of your documents. They are:

- **The spell checker.** To let Word check your document for possible misspelled words, click on the Spelling button on the Standard toolbar (the one with the *ABC* and the checkmark). Word will spell check your document, pausing when it finds a possible error, and listing the suspect word in its Not In Dictionary box. You can change the word to Word's suggested change, ignore the word and continue the spell check, add the word to a custom dictionary, or click the AutoCorrect button to add the error and its correction to the AutoCorrect list.
- **The grammar checker.** To grammar check your document, select the Grammar command from the Tools menu. When Word finds a sentence that may contain a grammatical or stylistic error, the sentence is displayed in a Sentence box, and a suggested change or description of the error is listed in the Suggestions box.
- **The thesaurus.** To find alternatives to a word, highlight the word and select the Thesaurus command from the Tools menu. Possible words are listed in the Replace with Synonym box. To choose one, highlight it and click the Replace button.



The AutoCorrect command lets you store frequently used text or graphics and quickly insert them in your documents.

Managing Your Files

Once you finish creating and editing your masterpiece, you'll certainly want to save it. After it's saved, you'll want to be able to open it again. At some point, you'll probably even want to print it.

Saving a file. To save a Word file, click the Save button on the Standard toolbar (the button with the diskette on it— even if you want to save the document to the hard disk) or select Save from the File menu. The Save As dialog box will appear the first time you save a file. In this box, you can type the name of the file in the File Name box. You also can select the drive and directory to which the file is saved by changing the selections in the Directories and Drives boxes. After you've told Word where to save the document, click OK.

Opening a file. There are several ways to open documents in Word. To open one of the last four documents you've worked on, select the document from the list at the bottom of the File menu. To open a different document, click the Open button on the Standard toolbar (the one with the open file on it) or select Open from the File menu. The Open dialog box pops on-screen. Select the document you want to open by changing your options in the Drives and Directories areas and highlighting the file when it appears in the File Name list. Then click OK or double-click on the file name.

Printing a file. To get a quick printout of your file, click the Print button on the Standard toolbar (the one with the printer on it) or select Print from the File menu. The Print dialog box appears, letting you choose how many copies you want as well as other options. Click OK when you're ready to print.

Closing a file. When you're finished using a file, you can close it by choosing Close from the File menu. To end your session with Word, select Exit from the File menu.

Getting More Help

After reading this article, you should feel a little more relaxed in the Word atmosphere. A little practice with these methods will make you feel even more comfortable.

To learn more about the features discussed in this article, watch the Quick Preview demonstrations that come with Word. The first two times you start Word, you'll see the Quick Preview screen, where you can choose to see one of three brief demonstrations of Word and its capabilities. To view these at any time, select Quick Preview from the Help menu. You also can use the Help menu while practicing in Word.

To make your Word documents a little more "homey," join us next month to learn how to format your text and create more elaborate page designs in Microsoft Word for Windows. ●

by Lori Beckmann Johnson

Getting The Hard Copy You Want From Microsoft Excel

As you probably know, spreadsheets are the best way to keep track of number-intensive tasks, such as finances and scientific data. At some point, though, you'll want to put your numbers on paper.

When it's time to print your spreadsheets, you may discover that you would prefer a little more (or less) complex printout than the copy that results when you select Print from the File menu. Maybe you just want to print a specific range of rows and cells. Or maybe you want to add headers and footers or change page numbers. You can do these things—and more—with Microsoft Corp.'s *Microsoft Excel* 5.0. To learn how, you just need to read through the following collection of printing tips.

We've organized these tips into common categories so you can easily alter options that affect the appearance of your document, the number of printed pages with which you end up, or the order in which these pages print. First, though, let's go over the basics of printing in Excel.

How To Print

If you need a quick copy of your spreadsheet, select Print from the File menu. A Print dialog box will pop on-screen. When you click OK, your spreadsheet will come rolling out of your printer. If you're sure that you have all of the Print dialog box's options set correctly, you can bypass the box by clicking the printer icon on the standard toolbar. (It's located under and to the right of the Edit file menu option.) That way, you can print with one mouse click instead of two.

NOTE: Before you can print anything, you must first select a printer. For the purposes of this article, we assume you have already done this.

Yes, printing in Excel is easy. Chances are, however, you'll prefer a document that looks a little different from the one on-screen. This article will help you get the printing results you want. Read through these printing options so you're familiar with them. Then keep the article as a quick reference tool when you run into a situation that requires the use of one or more of our tips.

Choosing What To Print

Defining A Print Area. When you will always want a specific range of cells to be printed, you can define the range as a print area. To do this, select Print from the File menu. Then click the Page Setup button in the Print dialog box (or select Page Setup from the File menu.) A Page Setup dialog box with four tabs will appear. Click the Sheet tab.

You'll notice a Print Area box. Click inside that box. Then place your mouse in the upper-left cell of the area you want to print and drag it (hold down the mouse button)

until the mouse is located in the lower-right cell of the range you want to print. The cell references (like A1:C3) will appear in the box.

NOTE: The selected areas will have a flashing, dotted line around them.

You can also specify nonadjacent print areas by typing the cell references into the Print Area box. For example, to specify the printing of cells A1 through C5 and E1 through H8, you would click in the Print Area box and type **A1:C5,E1:H8**. These defined areas will then print on separate pages.

Printing A One-Time Selection. To print a range of cells only once, select the range by highlighting them with your mouse (just as you did to define a print area). Choose Print from the File menu. Click the button in front of Selection under the Print What area. Click OK.

Printing An Entire Workbook. To print the defined print areas of all the spreadsheets in an open workbook, choose Print from the File menu. Click the button to the left of the Entire Workbook option under the Print What area. Click OK.

NOTE: For the worksheets where no print area has been defined, Excel will print the entire worksheet.

Printing A Range Of Pages. To print one page or a range of pages in a worksheet, choose Print from the File menu. Click the button to the left of the Page(s) option. Then enter the range of pages you want printed in the From and To boxes. For example, to print pages 5 and 6 in a 10-page spreadsheet, you'd enter 5 in the From box and 6 in the To box.

Printing A Group Of Sheets. To print a group of sheets in an open workbook, hold down the SHIFT or the CTRL key while you click on the tabs of the sheets you'd like to print. Then choose Print from the File menu and click OK in the Print dialog box.

■ Previewing Your Printout

Previewing A Sheet. To preview your spreadsheet, click on the Preview icon, which can be found with the page and magnifying glass to the right of the Print icon on the standard toolbar. Or hold down the SHIFT key while you click the Print button on the toolbar to view the spreadsheet before printing.

■ Changing A Sheet's Appearance

Changing Page Orientation. You can print your spreadsheet in **portrait** (the short edge of the paper is horizontal) or **landscape** (the long edge of the paper is horizontal) orientation. To change orientation, select Page Setup from the File menu or the Print dialog box. Click the Page tab in the dialog box. Now click on Portrait or Landscape under Orientation.

When you will *always* want a specific range of cells to be printed, you'll want to define a print area. The cells of a defined print area will be highlighted with a dotted line, and their references will be placed in the Print Area box on the Sheet tab in the Page Setup dialog box.

Changing Paper Size. You can print your spreadsheet on different sizes of paper. You may have too many columns in your spreadsheet to fit it all on landscape-oriented, letter-sized paper, but all the cells may fit on landscape-oriented, legal-sized paper. To change paper size, choose Page Setup from the File menu or the Print dialog box. Click the Page tab. Then choose letter, legal, or other paper sizes from the scroll-down list in the Paper Size box.

Changing Margins. To change the margins on your page, choose Print from the File menu and click Page Setup. Click the Margins tab. In the Margins area, you can enter the desired distance between your data and the top, bottom, right, and left edges of the paper. The measurements you select for each box are in inches. If you get confused about which dimension you're changing, the Preview sheet to the right of the Top, Bottom, Left, and Right boxes highlights the margin you're currently changing. (Note that it doesn't show how the page will appear.)

Centering A Spreadsheet On A Page. To center your spreadsheet within a page's margins vertically, horizontally, or both, choose Page Setup from the File menu or the Print dialog box. Choose the Margins tab in the dialog box. On the bottom of the box, there is a Center on Page option. Click in the box to the left of the Horizontally or Vertically options or click in both.

NOTE: Centering the spreadsheet on the page centers it between the margins. If the margins aren't the same on both sides, the spreadsheet won't be exactly centered on the page.

Printing Row And Column Titles On Subsequent Pages. You can choose to have specific rows or columns repeated on every printed page. These rows or columns are then called **titles**. To do this, choose Page Setup from the File menu or the Print dialog box. Then click on the Sheet tab and specify the rows and columns you want to use as titles under Print Titles. (Rows go in the Rows To Be Repeated At Top box, and columns go in Columns To Be Repeated At Left box.) Rows and columns are defined the same way you defined a print area.

Adding Or Deleting Gridlines. If you want to print a spreadsheet without gridlines (the lines that separate rows and columns), choose Page Setup from the File menu or the Print dialog box. Click the Sheet tab to make sure there's not an *X* in the Gridlines box. (If you want to print the spreadsheet with gridlines, make sure the box has an *X* in it.)

■ Altering The Number Of Pages

Scaling The Spreadsheet. Scaling the data alters it in printed form but doesn't affect its appearance on-screen. To scale your spreadsheet, choose Page Setup from the File menu or the Print dialog box. Select the Page tab. Under Scaling, select the Adjust To Option button and choose or type the percentage by which you want the sheet enlarged or reduced. (100% is normal size. You can enlarge your spreadsheet up to 400% of its normal size or reduce it to 10%.)

Fitting A Spreadsheet To A Specific Number Of Pages. Perhaps you want your

data to fit a certain number of pages. For example, if your worksheet is only slightly larger than one page, you might as well scale the data to fit on one page. To do this, choose Page Setup from the File menu or the Print dialog box. Select the Page tab. Under Fit To, type the dimensions you want. For example, to fit a spreadsheet on one page, you'd make sure the Fit To box reads: Fit to 1 page(s) wide by 1 tall.

Sometimes, you'll want to fit your spreadsheet in one dimension only. Perhaps you want all of the spreadsheet's columns to fit across one page, and you don't really care how many pages it takes to print all the rows. To do this, enter a 1 in the first Fit To box only.

The Nitty Gritty

Changing Page Numbers. To change the page numbers on your spreadsheet pages, choose Page Setup from the File menu or the Print dialog box. Click the Page tab. To start the numbering of your pages at 1 (for the first page) or the next sequential number (for following pages), enter AUTO in the First Page Number box at the tab's bottom. To start with another number, enter that number in the box.

Changing Page Order. When your data doesn't fit on one page, you can control the order in which it is numbered and printed. You can choose Down, Then Across. (This prints the rows and columns on the first page. It then prints the pages below, moves to the right, and continues to print going down the sheet.) Or you can choose Across, Then Down. (This prints the rows and columns on the first page. It then prints the pages to the right, moves down, and continues to print to the right.) To change the page order, choose Page Setup, select the Sheet tab, and choose one of the Page Order options.

Adding Headers And Footers. Headers and footers are the descriptive text that prints at the top (header) and bottom (footer) of every page in your worksheet. To create a header or footer, select Page Setup from the File menu or the Print dialog box and click the Header/Footer tab.

To make a header, choose the one you want from the list of built-in headers under the Header box. Just scroll through the prebuilt list by clicking the arrows to the right of the box. As you select headers, look at the preview area located above the box. It will show you what the header will look like.

To create a custom header, click the Custom Header button. A Header dialog box pops on-screen. This lets you create a one-, two-, or three-section header. After typing the desired header, click OK.

Footers work similarly to headers, except that the footer preview box is below the Footer box. In order to create a custom footer, you click the Custom Footer button.

NOTE: You may run into a situation where your headers or footers overlap your data. This is because the distance between the header and the top of the page or the footer and the bottom of the page is greater than the margin settings. To change these header and footer distances, choose Page Setup from the File menu or the Print dialog box. Select the Margins tab. Type a smaller number in the Header and Footer box under From Edge than that in the Top or Bottom box.

Printing Charts

If you create charts with Excel, you know that you can embed charts on a worksheet or keep them on separate chart sheets. When a chart is embedded on a worksheet, it prints as it appears on the worksheet. When it is on its own sheet, however, you can choose to print it at a scaled size. By default, the chart is set to print in landscape orientation, filling the entire page.

Scaling A Chart. To adjust scaling for a chart, choose Page Setup from the File menu or the Print dialog box. Select the Chart tab (which appears only when you're working with a chart sheet). This page gives you three options. Use Full Page expands the chart to fit the full width and height of the page margins. This may change the proportions of the chart as you see it on-screen. Scale To Fit Page expands the chart to the nearest page margin before printing. (The chart expands in both dimensions proportionally until one dimension fills the space between the margins. If the chart width is twice the chart height on-screen, it will keep these proportions when printed.) The Custom option lets you scale the chart sheet. To change the scale, select the chart and drag its borders to change its size and shape until it looks the way you want it to when printed.

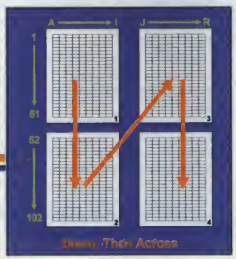
Easy Copy

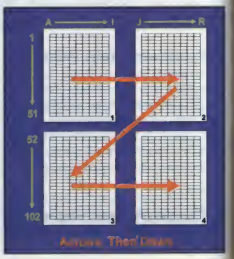
Hopefully, with the printing tips provided here, you can make your Excel data meet your printing specifications. After all, if you understand your spreadsheet printing options, it isn't so tough to get a hard copy to look the way you want. ●

by Lori Beckmann Johnson

For More Information:

Microsoft Excel 5.0
Microsoft Corp.
(800) 426-9400
(206) 882-8080





When your data doesn't fit on one page, you can control the order in which it is numbered and printed. You can choose Down, Then Across or Across, Then Down.

Performing PC Brain Surgery: Replacing A Pentium Microprocessor

By now, especially if you own a Pentium computer, you've heard about the flap at Intel Corp. concerning its newest microprocessor chip. The Pentium's flaw, which involves certain mathematical calculations performed by the microprocessor, was reported not only in computer publications but also by national general media outlets. Intel, which is the world's leading microprocessor chip manufacturer, probably compounded the negative publicity by not immediately offering to replace all of the flawed chips. The company instead initially offered to replace them on a case-by-case basis.

Intel now has changed its policy, though, and if you own one of the two million Pentium computers that shipped with the flawed chip, you can receive a replacement chip for free. Intel will even pay for the installation of that chip, if you choose, or you can perform the replacement yourself. We'll take you step by step through the Pentium replacement that you'll most likely encounter. *(NOTE: Each manufacturer's computer is different, so each replacement of a Pentium chip will be slightly different. We'll provide general steps for replacing the chip, but you'll need to contact Intel, and possibly the manufacturer of your computer, for exact instructions on performing the replacement. The same rule applies to the illustrations. Your Pentium chip configuration may differ slightly from what we'll show here.)*

The PC's Brain

The **microprocessor** often is referred to as the "brain" of your computer, because it runs every aspect of your computer. Every instruction travels through the microprocessor, which completes and routes the instructions to the proper component of your computer system. The microprocessor, also called the **central processing unit** (CPU), is the most vital piece of hardware in your computer. It consists of a tiny square silicon chip often enclosed in a plastic casing. In IBM-compatible computers, you'll find microprocessors with names like 386 or 486. The Pentium microprocessor, which is the next improvement in performance from the 486, is the latest and most powerful chip from Intel.

The flaw in the Pentium chip isn't something the majority of computer users will run into on their own. In fact, only one person—a mathematics professor from Lynchburg College in Lynchburg, Va.—has accidentally run across and noticed the flaw. After discovering the flaw, Intel corrected it and began shipping updated Pentium chips.

The error occurs when the Pentium's **math coprocessor**, which teams with the microprocessor to speed its performance with mathematical calculations, performs floating-point notation. (**Floating-point notation**, also called exponential notation, is a format used to represent extremely large and extremely small numbers. The computer eliminates extra zeroes while the calculation occurs, speeding the processing. The math coprocessor, also called a floating-point processor, performs calculations using floating-point notation.)

Finding The Flaw

Division calculations performed by the Pentium's math coprocessor that involve more than four places past the decimal point may be figured incorrectly. You can check the accuracy of your Pentium chip by using the "Coe's Ratio" calculation. In the Accessories group in Windows Program Manager, double-click on the Calculator icon. Now divide 4,195,835 by 3,145,727. If you have a flawed Pentium chip, you'll get an incorrect answer of 1.3337907 (or a similar answer, depending on how many decimal places your math coprocessor figures). If your Pentium is working properly, you'll see the correct answer of 1.33382045 (or a similar answer). To double-check whether you need to replace your microprocessor, you can contact the computer manufacturer to determine if it was among the group of Pentiums manufactured before Intel detected and corrected the flaw.

If you've determined that you need a new Pentium processor, you'll need to contact Intel as described in Step 1 below. Whether you are able to perform the replacement yourself depends on the type of socket that your

microprocessor occupies . . . and on how ambitious you are.

Greg Meythaler, Intel's Pentium processor installation supervisor, says the replacement process is fairly simple for Pentium chips in computers made by major manufacturers, but the process in some other computers basically is impossible without outside help. You'll need to contact Intel to determine your situation.

Whether you decide to perform the replacement yourself or have an authorized service center take care of the problem, you will run into a few situations and terms with which you probably aren't familiar. We'll explain some of those before providing some general step-by-step instructions for replacing your flawed Pentium chip.

ZIF Or LIF

Nearly every Pentium computer will have its microprocessor in either a **zero-insertion force (ZIF)** socket or a **low-insertion force (LIF)** socket. You will find ZIF sockets in most Pentium computers. With a ZIF socket, a tension arm holds the microprocessor chip in place, and the chip pops out when you release the tension arm. No force is required to remove or install the new chip. The tension arm applies the pressure needed to hold the chip in place. Meythaler says computer users who are replacing Pentium chips in ZIF sockets have the option of doing it themselves or using a service center.

If you have a LIF socket, you'll probably need help from a professional at a service center. The name of the socket is a misnomer, Meythaler says, because as much as 200 pounds of pressure can be required to make the new chip fit into its socket (hardly qualifying as "low-insertion force").

"It takes a lot of delicate force to get the old part out, and it takes 200 pounds to get the new part in," Meythaler says. "It's not something for the light of heart at all. It's only something for an experienced technician to take care of. . . . If they have a LIF, I wouldn't recommend they do it themselves. It's really dangerous as far as damaging the system. It probably requires that they fully disassemble their system. It's pretty involved."

Built-in Air Conditioning

Pentium chips use different heat sinks to keep cool, and the type of heat sink used in your computer will determine, in part, the difficulty of your installation. (A **heat sink** is a device, usually made of metal, that absorbs and dissipates heat generated by an electrical component.)

With millions of electrical currents blazing through a microprocessor every second, some heat is generated. The heat generated by the Pentium is dissipated through the heat sinks, which usually are anodized aluminum fins that are attached by epoxy to the top of the chip.

"Essentially, metal conducts heat very well, so this takes the heat from the center of the chip where the die sits, and distributes it out," Meythaler says. "Because there are a lot of fins sticking up in the air, there's more surface area over which to dissipate the heat. There is air flow through the system. The air flows down through the fins and the heat's dissipated."

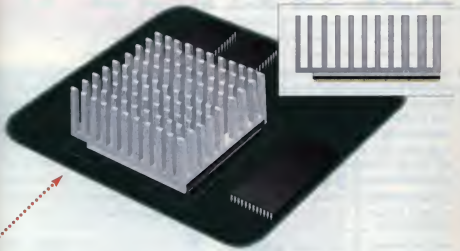
In some computer brands, the design of the components is such that the regular air flow through the computer (generated by the computer's main fan) is enough to dissipate the heat from the fins and keep the chip cool. Such systems are called **passive heat sink**. Other computer manufacturers require a fan mounted on the Pentium chip's heat sink to move air through the fins, and such systems are called **active heat sink**.

Because most major manufacturers have Pentium computers with a ZIF socket and passive heat sink, we'll focus on that type of system. We'll mention some tips for dealing with other ZIF socket configurations. As with any hardware installation you're trying to perform, you should read through all of the provided instructions thoroughly before beginning. Because you might need help from technical support at some point, you should make certain you have a phone available that you can use while sitting in front of your computer.

1. Your first step in replacing your Pentium chip is to call Intel. You can't obtain a new Pentium chip in a computer store; you'll have to order one from Intel. When you call the company at (800) 628-8686, you'll need to provide the brand name and model of your Pentium computer. Intel needs this information to determine the type of Pentium chip your computer requires. The company also can determine what type of installation will be required and can recommend whether you need to have a professional perform the upgrade or whether you can do it yourself. Certain manufacturers are handling all aspects of the upgrade themselves, and, if your computer comes from one of those manufacturers, Intel can provide you with the correct phone number to obtain your chip.

2. After receiving your chip, you are ready to begin installation. If you run into a problem during installation, you can call Intel at (800) 243-6066 for technical assistance. If you decide to let a professional handle the replacement, Intel will pay for an authorized service center to perform the installation. Call Intel at (800) 628-8686 to obtain the name of a service center in your area.

3. Unplug the computer and monitor at their power sources. Move the monitor out of the way, and be certain you have plenty of clear desk space. Screws at the back hold on most computer casing covers, but some have hinges you'll need to unhook. Remove the computer casing cover and set it aside with the screws. Before touching any of the computer's components, be sure to ground yourself by touching the metal part of the case (the chassis) near the power supply. This will prevent damage to the computer's circuits from static electricity. Be certain to have all of the tools and components you'll need in easy reach.



4. Now you need to locate your Pentium microprocessor. Each manufacturer puts its microprocessor in a different spot on the **motherboard**, meaning you may have to hunt to find it. (All of the computer's components are connected to the motherboard, which is a circuit board that usually occupies the entire bottom of the computer case.) Even looking for the Pentium brand-name marking or the Intel marking isn't a savior—the top of the Pentium chip, where the brand-name appears, is nearly always covered with devices to cool the chip.

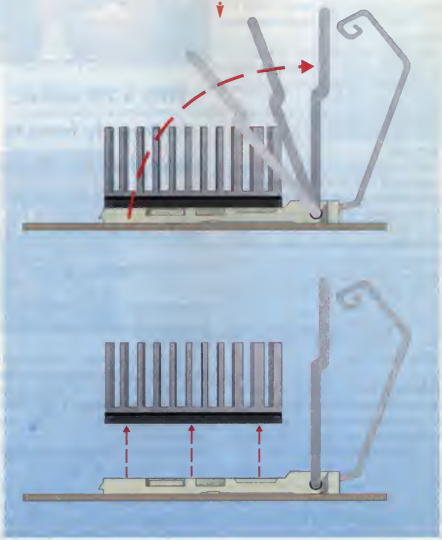
"It's hard to say what markings are going to be on it, because when we start putting heat sinks on it, the labels get covered up," Meythaler says.

If you have a Pentium 60 megahertz (MHz) or 66MHz computer, you might see "Socket 4" on the socket that holds the chip, and if you have a Pentium 75MHz, 90MHz, or 100MHz computer, you might see "Socket 5." You might see a few chips inside the computer that have "Intel" printed on them, but one of these probably isn't the microprocessor. You can find the Pentium microprocessor and casing by its size, which is about two inches square. The Pentium is slightly larger than earlier versions of Intel microprocessors.

What you'll most likely see are the heat sinks covering the chip and its casing. The heat sinks are metal fins about three-fourths of an inch long and about one-eighth of an inch wide that extend from the top of the chip. Some Pentium chips have as many as 100 heat sink fins. Sometimes a fan, designed to cool the microprocessor further, will cover the heat sink fins. The fan will have the same dimensions as the chip's casing and heat sink. (See Step 6b for more information on disconnecting and connecting the fan.)

You also can identify the Pentium chip, if you have a ZIF socket, by the tension arm. The arm is about two inches long and sits along one side of the chip's socket. The heat sink fins might slightly obscure the arm.

5a. If you have the ZIF socket, removing the chip should be fairly easy, as long as you have a major brand of computer. After finding the Pentium chip, locate the tiny tension arm that holds the chip in place. You should be able to use your fingers to move the tension arm, but if your microprocessor is tucked into a corner of the computer's case, you might need a screwdriver. Slowly lift the arm (it should move easily) until it's at a 90-degree angle to the chip. Once you reach 90 degrees, you should feel the chip release from the motherboard socket. Carefully lift the chip out of the socket, taking care to avoid contact with other portions of the computer. Don't touch or bend the delicate connector pins on the underside of the chip.



5b. A few manufacturers use a clip, in addition to the tension arm, on top of the Pentium chip. The clip, which is designed to hold the heat sink in place, must be removed before the Pentium chip can be taken out of the socket. The clip often is simply a thin piece of metal lying between the rows of heat sinks. When you call Intel to order your replacement chip, the company can tell you whether your microprocessor has the extra clip. Some clips require a screwdriver for removal.

6a. Now you're ready to reinstall the fixed chip. Again, if you have a common brand of computer, the installation should be fairly simple. On computers with 75MHz, 90MHz, or 100MHz Pentium chips, the chip acts like a key, only fitting in the socket one way. The microprocessor's pins make a square point on three sides and are beveled on the fourth side. When you have the chip properly aligned, it should drop snugly into the socket. With a ZIF socket, don't apply force to make the chip fit into the socket because you could damage its connector pins.

"If you try to misorient it, one of those corners that has pins all the way out to the corners will not drop into the hole where the bevel is," Meythaler says.

With 60MHz and 66MHz Pentium chips, an extra key pin in one corner helps align the chip properly.

Once the chip is in the socket, you can push the handle back down to horizontal from its 90-degree position to lock the new chip in place.

If you're having problems getting the new chip to drop into the socket, Meythaler suggests checking the position of the tension arm. Sometimes the tension arm will slip to less than 90 degrees after removal of the original chip.

"Make sure the [tension arm] is still upright when you put the new one in," he says. "Sometimes they sort of will go slack and fall halfway down," preventing you from properly installing the new chip.

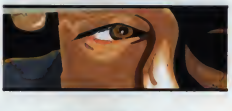
6b. Some Pentium chips have built-in fans along with the heat sinks to make certain they stay cool enough to work properly. If you have a fan, you'll have to connect it before you can complete installation of the new Pentium chip.

Meythaler says most major manufacturers design their computer components to use passive heat sink, and Intel will ship you a passive heat sink replacement chip. But if you have a Pentium computer from a smaller manufacturer or one that was made overseas, chances are Intel will send you an active heat sink replacement chip, even if the computer originally contained a passive heat sink.

"We don't know a lot about [computers that] come in from overseas or from really small manufacturers that put together their own systems," Meythaler said. "Probably the default is to get them a part that has a fan right on the heat sink, so that we can be absolutely sure that the Pentium we're putting in there is going to have enough cooling."

When removing or installing a chip with a fan, as long as you have a ZIF socket, you can follow the directions above—with one extra step. You'll need to disconnect the fan from and connect the fan to your computer's power source.

Disconnecting the chip from the power source should be as simple as unplugging the cord for most manufacturers. Some will be more difficult, though, and may require use of a service center.



With a ZIF socket, don't apply force to make the chip fit into the socket because you could damage its connector pins.

With most computers, connecting the Pentium chip fan's power supply should be as easy as plugging it into an existing power supply cord. Intel provides a pigtail power cord that connects to the fan and plugs into a power cord.

If all of your power cords are occupied inside the computer, the fan's cord can be plugged into the middle of an existing cord. Temporarily disconnect a power cord from its device. Plug the fan cord into the free end of the power cord and then connect the other end of the fan cord to the device originally connected directly to the power cord. Again, some computers will present difficulties and may require use of a service center.

7. After installing the microprocessor, check to make certain the other components haven't been accidentally jostled out of place. In the cramped quarters inside your computer, it's easy to bump a component.

8. At this point, you can replace the computer case cover. Reconnect the monitor and computer to their power sources. Turn on the computer.

9. You should notice no difference in the way your computer boots or operates (except that the "Coe's Ratio" now will give you a correct answer). No software is required to make your computer recognize the upgraded chip.

If you haven't gotten the chip into the socket properly, your computer will probably experience one of the following problems: You won't be able to boot the computer at all; the computer may lock up after running for a few minutes because the chip expands slightly as it warms up and loses its contact with the socket; or you'll receive general protection faults once inside Windows. Basically, your computer may boot up, but it won't work properly if the chip is installed incorrectly.

If you have this problem, either start over with Step 3 or contact Intel and take the computer to an authorized service provider.

Even though obtaining and replacing a flawed Pentium chip may sound like more of a hassle than it's worth, we recommend you go ahead and do the upgrade yourself or have a service center perform the upgrade. After all, Intel will send the chip at no cost to you, and, if you don't feel like installing it yourself, Intel will pay to have the chip installed by a professional. Besides, you never know when your livelihood might depend on your computer correctly determining the answer to 4,195,835 divided by 3,145,727. ●

by Kyle Schurman

For More Information:

Pentium replacement chip
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Locating a service center: (800) 628-8686
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Troubleshooting Video Output

When that PC sitting on your desktop hums along like it's supposed to, how sweet it is. It's useful, fun, and makes you more productive when you're not playing CD-ROM games. But one glitch of the video, one ominous error message, and the fun and games are, literally, over. What do you do? Panic? Call vendor technical support and watch your fingernails grow? Fetch the hammer?

It doesn't have to be any of the above. With a little guidance, an open mind, and a lot of patience, there is action that you can take to isolate, pinpoint, and maybe even get your video output back in working order. You'll even see your self-esteem climb a few notches in the process.

To determine the course of action required to fix the problem, you first have to determine the nature of the problem. Does the problem reside in the graphics card or the monitor? While you might already have discovered that vendors are quick to point the finger at the other guy, video-related problems are more often tied to the graphics hardware or software than to the monitor, but not always.

Getting Started

Let's first troubleshoot the monitor. Kirt Yanke, a product engineer at NEC Technologies Inc. in Wood Dale, Ill., says that the most common complaints received by customer service reps include blank, or black, screens; images dropping out and coming back on-screen; garbled text; swimming screen images; and distortions.

Let's say you turn your computer on and get a blank screen in Windows. Check the basics. Look on the front of the monitor. Is the LED light on? If not, check the connections at the back of the computer and at the outlet. Now turn the monitor on and off again. You should hear a crackling sound. That means that the CRT, the tube inside the monitor, is getting power. If you hear the crackling but still have a blank screen, or if you hear nothing, then you have a monitor problem. Call the vendor.

In some cases like this, the user is overrunning the monitor frequency, meaning that the monitor has been configured beyond the vendor specifications. Some monitor manufacturers, like NEC, include circuitry that automatically turns off the monitor in this situation so that the system isn't damaged. If you've been overrunning the monitor frequency, reconfigure the monitor to comply with the vendor specifications as they are outlined in the user manual.

You also might get a blank screen if you have a monitor that complies with the Environmental Protection Agency's DPMS standard for power savings. What this means is that the monitor automatically powers down, or goes black, when not in use for a specified amount of time. Some vendors have added additional LED lights to indicate when this has occurred to eliminate some of the user's guesswork.

If you're confronting a situation where the image comes and goes, it's likely that the 15-pin connector isn't seated properly in the back of the computer.

Yanke says that the most common question users ask when they're trying to isolate a graphics card or monitor problem has to do with a situation where the text is garbled but the icons are OK. "Users think this is a monitor problem, but the monitor is just a dumb device displaying information sent to it," he says.

When this happens, get into Windows Setup and choose the standard VGA setting. If everything runs as it should, the problem is related to the graphics card. (Windows Setup is in Program Manager's Main group. After double-clicking on Windows Setup, you'll see a dialog box listing the current settings. To change settings, open the Options menu, then choose the Change Systems Settings option.)

If your screen image seems to have taken on a life of its own, or appears wavy or distorted, the culprit is usually electrical interference. Isolate the monitor from everything on your

desk, such as a lamp or speakers; move it away from the wall where there might be electrical lines, either visible or buried; and see if the problem disappears. Or buy an extension cord of decent quality and plug it into different outlets to see if the interference still occurs. Another option is to buy a line conditioner to assure steady voltage to your computer.

Complaints about image distortion and poor color usually mean that the user is unfamiliar with the monitor controls. Read the manual to find out more about the monitor.

If you're having a color problem in only one application and not across the board, you're most likely experiencing a system problem or problem with the graphics card.

Monitors don't often fail, but when they do, it's in a way that causes something not to respond, such as the absence of the crackling noise that indicates the CRT is getting power. Intermittent problems are not usually monitor-related.

According to Dan Coyle, media relations coordinator at ATI Technologies Inc. in Ontario, Canada, and a former customer support representative, there are four categories for video output failure: configuration, hardware, an issue with the application or operating system, and a conflict within the system.

Installation & Configuration

If you're installing a card, installation procedure and card configuration have to follow the book. That means you need to read the manual from cover to cover. One blunder is all it takes for something to malfunction.

Make sure the old graphics card has been removed before you attempt to install a new one. The system won't boot with two graphics cards in it.

Clearly define the specifications of your monitor during the installation process. This means understanding what specifications your monitor supports. Jot down the vertical refresh rate and the horizontal and vertical frequencies as they are listed in your hardware manual. (**Refresh rate** is the frequency with which the entire screen is redrawn to maintain a constant, flicker-free image.) Read carefully because not all monitors support every resolution at the same vertical refresh rate. If you don't follow the manufacturer's specifications for the monitor, you could damage the monitor and/or the card.

Make sure the graphics card and the monitor are a good match. Overbuying or underbuying on either the graphics card or monitor can lead to trouble. Think about the applications you'll be running and your graphics requirements, and buy accordingly.

One blunder is all it takes for something to malfunction.

It's important to have the most current device drivers available for the graphics card. **Device drivers** allow the application, operating system, and graphical user interface to maximize the available features and functionality of the graphics card. Drivers are updated frequently. Just because you bought the latest version of a product doesn't mean it hasn't been sitting on the retailer's shelf or in a warehouse long enough to be missing the most recent software driver updates. And get those driver updates before you attempt to run your applications and need to be productive.

Graphics board manufacturers make it easy for customers to get driver updates. Call technical support or download the latest software update from an online service such as CompuServe, or the Internet. Any board manufacturer worth its salt will include in the product documentation the ways by which the customer can access information, ie. vendor telephone number, customer support telephone number, fax number, and online services.

Hardware Failure

Troubleshooting is where the real fun begins. Don't lose your patience. If the technology overwhelms you, think of yourself as a detective instead of a technician. Be methodical and look for clues.

When you do begin looking, proceed with caution. Don't open the machine unless it's turned off—your computer isn't the only thing that can be injured by electrical shocks and surges. Once your computer case is open, avoid dropping screws on the motherboard. And to save yourself time, check the most obvious causes of hardware problems: improper connections and poorly placed boards, such as boards seated in the wrong slots.

If the graphics card includes a diagnostic diskette, run the software to test the card's functions. A failure in the test can mean one of two things: the graphics card is bad, or there's a failure somewhere in the system. You can isolate a system problem quickly by booting your system off a system diskette and rerunning the diagnostic test. If the problem goes away, then the trouble resides in your computer's startup files.

Some of the manifestations of hardware failure include a system that won't boot, a system that beeps at you, failed diagnostic tests, and the failure of other peripherals.

When the system configuration is changed and a failure results, go back to the original configuration and see if it still works. Go through a process of elimination to find the problem. This might mean taking out cards to see what works and what doesn't until you can isolate the card that's causing the failure.

When other peripherals fail, i.e., communication devices, storage devices, and other products attached to the graphics card, as a result of installing a new card, you might have I/O port address conflict. (**An I/O port**, or **input/output port**, is the channel through which data is transferred between an input or output device and the microprocessor. The port appears to the microprocessor as one or more memory addresses that it can use to send or receive data.) Make a note and identify how each peripheral is configured, the I/O port address, and interrupt request lines (IRQ). (**Interrupt request lines** are hardware lines over which devices can send requests for service, or interrupts, to the microprocessor.)

Analyze where each peripheral lives on the bus. (A bus is like a shared highway of hardware lines that connect the various parts of a computer system and enables them to transfer data.) Document that, the BIOS part numbers, the ROM numbers, where you found them, and what they are. (BIOS and ROM part numbers can be found in the hardware's documentation, the configuration software, or on the motherboard.) In the case of irreproducible problems, this information is invaluable to tech support if you need to call them.

Documenting this information may be a challenge depending on the device and its manufacturer, which backs up the case for buying quality products that have brand name recognition. If the documentation isn't written in English and you can't translate it, the information is out of reach. If you didn't get the documentation in the first place, you're also out of luck. If you had the documentation and then discarded or misplaced it, and the manufacturer is out of business, sorry Charlie.

With this in mind, it's advisable to hang on to product documentation. Check the product's configuration software for this information or the diagnostic software if any came with the product. You also can call the manufacturer if removing a specific board resolves a problem to find out how it's configured.

OS & Application Problems

The old graphics card was running great with your system. Then you installed a super-fast accelerator card, called up those old applications, got a General Protection Fault (GFP), and watched the application blow up.

First, shut down your computer, reboot it, and try again. If you get a GPF, make sure you have the most current device drivers. Take a close look at how the driver is configured. Does the application require a certain color depth for the functions you're trying to perform? Does the application blow up in basic VGA in the Windows setup, for which most applications are written?

If the application won't run in VGA, then it's unlikely that the problem is related to the new device driver. In fact, it is probably a greater problem than the device driver. At this point, you might want to contact the vendor of the application in which the problem was occuring.

If the application doesn't blow up in VGA, look at the device driver. In this case, the graphics card vendor definitely wants to know why your application won't run with the new board. It also could be a bug in the software.

In its aggressive pursuit of housekeeping, a memory manager might wipe out an area of memory that the graphics card uses.

Jeff Orr, product manager at Diamond Multimedia Systems in Sunnyvale, Calif., offers users an additional piece of advice. Browse the device driver's Readme files. "Sometimes the manufacturers use these files as an addendum to the product documentation, which means that they might contain more recent information about the graphics card," he says.

Conflicts In The System

A conflict in the system can be any of the things previously mentioned and several more.

Users might run into a conflict with memory management software that is designed to optimize the memory in your system. In its aggressive pursuit of housekeeping, a memory manager might wipe out an area of memory that the graphics card uses. Once the deed is done, it can cause a lockup in the system or appear as an inconsistency in the way an application runs.

To remedy this situation, go back to the documentation provided by the graphics card vendor. You should be able to find information on the memory areas that the card will use, which hasn't been changed since VGA came out several years ago. You then can exclude those regions from the memory manager's use or temporarily "remark" out the memory manager, which will take out the memory manager to see if it's causing the problem. (To do this, type **rem** and a space before the line in your Autoexec.bat file that loads the memory manager.)

If you're running 24-bit color when you start Windows and get an insufficient memory message and a black icon, you're seeing a bug in Windows. Windows allocates a certain amount of memory for icon color. In 24-bit color, Windows runs out of memory for it.

Users can avoid this problem by minimizing the number of icons in a given group or by having fewer icon groups. Knowledgeable sources report that Microsoft is working to ensure that it won't be in the new Windows 95 operating system, scheduled to be released in August.

Call Off The Dogs

Pursuing this kind of technical detective work is not for everyone, but a little self-help can go a long way. However, the time may come to throw down the screwdriver.

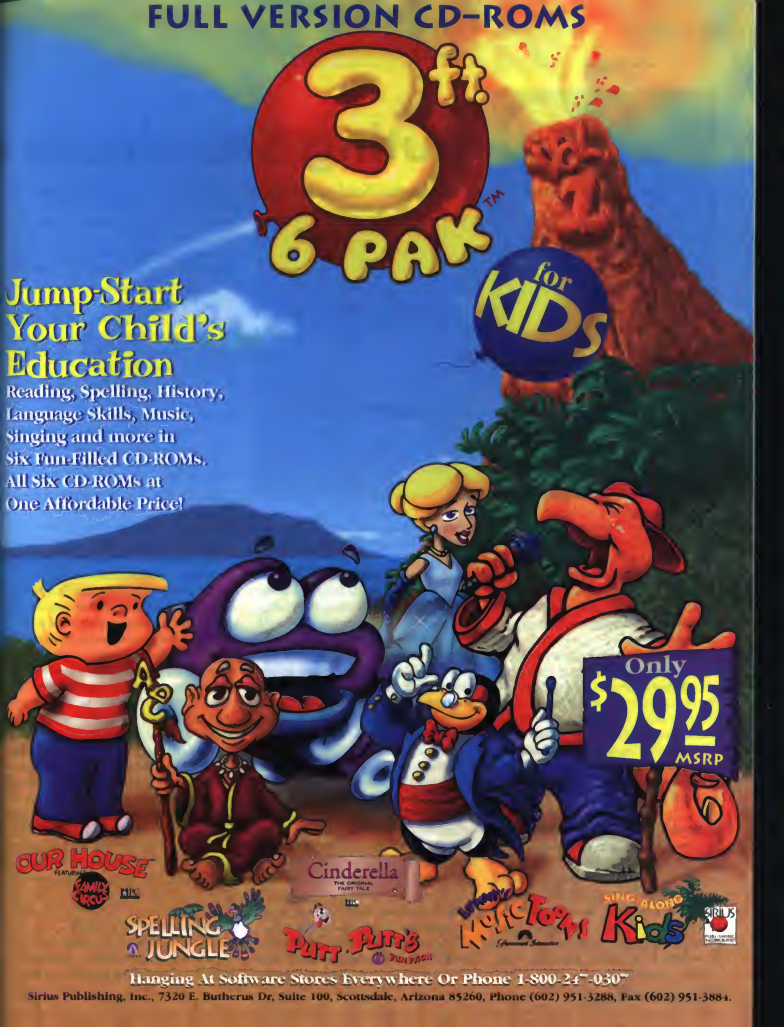
If the problem is easily reproducible and you haven't been able to get around it by any means tried, or if the problem is detrimental to using the computer, you may want to contact the vendor.

Vendors recommend that when you call customer support, you have access to the system, the product manual, and the vendor-provided diskettes. The problem might be resolved on the spot.

If the problem is not reproducible and you get a GPF, jot down the information on-screen because it contains relevant information that lets customer support quickly isolate and solve your problem.

For off-hour inquiries, many vendors have 24-hour, seven-days-a-week, fax-back service for frequently asked questions. Online services are also round-the-clock options, and you might find other users who had experiences similar to yours and who can provide solutions.

by Lynn Haber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IrDA Computing Standards

Infrared Communication Is Made Easier With These New Regulations

You've been traveling from meeting to meeting, taking copious notes on your laptop, and composing memoranda that need immediate attention; now you're back at your home office and ready to transfer the information. . .but where the heck did you put that serial cable?

Sound familiar?

As the demands of on-the-go business people increase, more mobile computers and devices will integrate infrared communications into their array of capabilities. **Infrared data** is transferred in a means similar to the technology in your television or stereo remote control. Simply explained, when two infrared transmitters/receivers are aligned and activated, they can transfer data between computers or serial devices, such as printers.

Have Laptop, Will Telecommute

Infrared technology is becoming increasingly important for the millions in the mobile work force. An estimated 24 million people in the United States work on the road while another 37 million individuals labor in home or remote offices. The technology needs of these people are expected to generate $3.7 billion for various hardware, software, and other related services in the coming decade.

There have been several types of infrared technology standards and a variety of products on the market over the years. The standards for these products were incompatible, however. Hewlett-Packard developed a standard known as serial infrared (SIR), giving a group of computer manufacturers under the umbrella of the Infrared Data Association (IrDA) a starting point for infrared standardization. The 70-company consortium recently announced the creation of an industry standard assuring consumers that a computer or peripheral, when stamped with the IrDA service mark, is compatible with other IrDA-certified equipment.

The benefits of infrared technology make it an attractive alternative for consumers. First, implementing infrared technology is inexpensive for the manufacturer and the user, the hardware is light, and devices no more than 39 feet apart can easily exchange information. Second, infrared is not regulated by the FCC, unlike cellular communications or mail systems that use radio signals for transferring information. Finally, users are able to break free from the bonds of serial cable connection.

Using infrared to transfer data between computers has another advantage in that the process uses little power and doesn't generate as much electromagnetic energy as does radio. Located within the nonvisible electromagnetic spectrum, infrared wavelengths are longer than those of visible red light. Radio frequency transfers occur at a similar rate as infrared but can travel greater distances and need no line-of-sight connection. Employing radio technology, however, is a bigger drain on your power source and pocketbook. Also, the FCC closely regulates these limited number of bandwidths.

The best example of a commonly used, highly regulated band is one that enables cellular communications to take place. This system utilizes a base station with a limited range of communications. To transmit data via analog cellular takes a modem connection and a prayer. Because this communication is basically a relay system between adjacent cells, there is a higher probability that there will be problems with the transmission.

For international travelers, infrared presents even more advantages. Radio communications may be regulated abroad or may be of questionable quality while there are no regulations governing the use of infrared. In addition, infrared doesn't rely on frequencies where interference may cause transmission problems. For that reason, some personal digital assistants or other devices that utilize services relying on part of a commercial radio station's carrier signal will find that these services are limited to use in the United States.

More portables are now equipped with built-in infrared ports, but many companies are manufacturing models that plug into the serial ports of computers, be they desktop or laptop, as well as printers. For example, Extended Systems makes an IrDA-compatible desktop connection that costs approximately $135 and enables your computer to link via infrared to a brand new, IrDA-compatible laptop.

Why Should I Care?

Why should anyone be concerned about whether their palmtops can communicate? The dissimilar technical standards of the past have

caused many problems. Let's pretend two business colleagues want to exchange information stored on their portables. One has a Newton MessagePad, the other a Sharp Wizard. Neither of these has similar means of connecting to allow an infrared data transfer because they use different standards.

So what good is the technology if it doesn't work properly? None. Enter the IrDA.

The new IrDA standard will enable a person with a Sony MagicLink to exchange information with someone who is carrying a Motorola Envoy or any other product equipped with IrDA-approved technology. There's no need for frustration if both parties exchanging data have products that meet the IrDA standard. You can trade your market analysis for a colleague's draft of the annual report quickly and easily.

The lucky people who have infrared serial port connections on their printers don't have to fumble around with cables any longer. They can simply align the notebook computer containing the meeting notes with the printer's infrared module and zip off reports to colleagues—reports created during the flight back home. The term for this portable-to-desktop, line-of-sight data transfer is **point-and-shoot infrared**.

Look For The IrDA Label

IrDA states that its purpose in devising a standard is "to create an interoperable, low cost IR data interconnection standard that supports a walk-up, point-to-point user model that is adaptable to a wide range of appliances and devices." In other words, the consortium wants to make infrared as inexpensive and easy to use on as many devices as possible. The organization also wants consumers to be assured that, when they purchase an item claiming to be infrared, the IrDA Certification mark guarantees compatibility.

The standard, which is very technical, specifies in part that:

- The IR link will use very low power so as not to be a power drain on batteries. This is a very important feature when using a notebook or handheld computer.
- The data transfer between devices can be initiated by the touch of a button, provided the devices are close and relatively in line with each other.
- The infrared link will have an extremely low rate of error when transferring data.

Because the IrDA members have expressed a standard for products that use infrared to transfer or receive data, the group has developed a certification program. Equipment that meets the specifications and passes the organization's testing criteria can display the IrDA Certification mark.

How Does It Work?

The infrared capabilities of a television remote control allow for information to be sent in one direction only. The short instructions that allow the equipment to change a channel or lower the volume are a few bytes in length, but infrared used in a computing application involves a two-way exchange of many kilobytes of information.

Infrared beams can transmit data because the computer's language consists of only two numbers, zero and one. The beams' pulses from data sent by the host computer can be interpreted as zeroes and ones by a photo sensor on the serial hardware and then expressed as zeroes and ones to the receiving computer. That data can be a word processing file, a spreadsheet, or even a graphics file.

The transfer speed when using infrared is about 115 kilobits per second, similar in speed to accessing information from a floppy diskette. Because the speed of the data transfer is not comparable to that of a hard-wired serial connection, the more efficient uses of infrared are updating files or uploading brief bits of information.

LAN, Ho!

Unlike point-to-point infrared, local-area networks (LANs) that utilize infrared do so in a way that allows connections to be made within a room by way of bouncing signals off walls and ceilings, eliminating the need to drape and string wires under desks and above ceiling tiles. Called **diffuse infrared**, this type of infrared data transmission currently has no standard. An established group of engineers, the IEEE, is working to create a similar set of protocols for infrared networking as part of a greater project designed to create standards for all wireless networks.

Transmission problems could arise, however, if you are working in a remote office and expect to come into a main office and have the infrared installed on your portable computer interface with the infrared LAN. In all likelihood, these two types of infrared systems will not be compatible because they do not use the same set of standards.

The use of this Infrared Data Association (IrDA) mark affirms that the referenced product or device complies with IrDA specifications.

2000 Light Years

In the years to come, all types of computers and related communication devices—telephones, fax machines, docking stations, and even ATM machines—will be able to transmit data via infrared. Even Microsoft plans to release Windows 95 with an IrDA-compatible driver.

As easily as you pick up your remote control to change a channel or the stereo volume, you could check your bank balance using a palmtop or send a fax from an infrared-equipped telephone booth in an airport during a layover.

Infrared technology gives new meaning to the myriad of communications possibilities available in the 21st century. It's no longer "Beam me up, Scotty." It's "Beam me!" ●

by Linda Dailey Paulson

For More Information:

Extended Systems
(800) 235-7576
(406) 587-7575

Infrared Data Association
P.O. Box 3883
Walnut Creek, CA 94598
(for mail inquiries only)

Spectrix Corporation
906 University Place
Evanston, IL 60201
(708) 491-4534

Online Eye-Opener

Microsoft's Network Promises A Shakeup

The old maxim tells us where 300-pound gorillas sleep. But where would profit-minded apes do business? The same place they sleep—anywhere they want. And when the big guy chooses a new market, the competitors who beat him there had better stay sharp.

The hulking power of the computer world comes from Redmond, Wash., in the form of Microsoft. Founder Bill Gates has built the software company into one of the world's commercial superpowers. Microsoft's overwhelming success is based on its version of DOS, the dominating Windows operating environment, and best-selling applications. Shrewd marketing (not to mention strong products) has put the company in a position to rule the jungle. Now the 300-pounder has spotted the world of online services and thrown its considerable muscle into taking its share, though many competitors and industry observers believe it won't be a fair one.

Microsoft smells market opportunity like a shark smells blood, and the constantly expanding online world is looking more and more like a hemorrhaging tuna. There are about 6.3 million subscribers to commercial online services, according to the Information and Interactive Services Report from Business Research Publications. The actual number of users may be closer to 5.4 million, according to the report, since about 15% of online customers subscribe to two or more services. The current year's prospects appear bright for online providers since about 14.5% of the users subscribed during the last quarter of 1994. The temperamental loyalties of customers also encourage new online providers. Business Research reports that subscribers frequently switch among competing services and often stay with one service less than two years.

To George Meng, a product manager for The Microsoft Network, and others at the company, such numbers are virtual neon signs pointing to the latest opportunity for an industry heavyweight. Meng says the online market has hardly been tapped in comparison to its potential. A Microsoft report states that although 40% of Microsoft Windows users have modems, less than 10% of the Windows users and 4% of U.S. households subscribe to any online service. In addition to the wide-open market, Meng says there are ways to offer a better online service than currently exists.

Microsoft officially entered the online race with the announcement of the cleverly named The Microsoft Network in November 1994. The disappearance of "Marvel," the service's code name, spawned rumors that Microsoft faced a trademark dispute with Marvel Comics over the name. Not so, Meng says. Marvel was a code name only and has been dropped. The Microsoft Network's access software is part of Windows 95, the new version of the Windows operating system scheduled for release in August. A limited version of The Microsoft Network is currently available in the **beta version** of Windows 95. Beta versions are pre-release versions of software sent to beta users for testing and comments. This integration of both an online service and operating system from a single company is a major reason for both The Microsoft Network's appeal and its threatening nature.

Online Via The OS

The network will inevitably appear before the eyes of many users. Meng says Microsoft projects potential sales of up to 30 million units for Windows 95 during its first year of release. Rochelle Theophano, a senior analyst at Datapro Information Services Group, says nearly every computer sold after August will probably have Windows 95 installed. Furthermore, a large percentage of current Windows users are likely to upgrade to the new operating system.

Meng says Microsoft's entry into the online market was largely fueled by a belief in the ample opportunity to make online services easier to use. The Microsoft Network will pursue that end, Meng says, by following an extension approach in which the network interface is an extension of the Windows 95 desktop. Users find that the same buttons, file-transfer procedures, and E-mail application they see in Windows 95 work in the network. One of Windows' popular traits is that applications share a similar interface. In the DOS world, separate packages often have unique interfaces that require constant adaptation on the user's part. The arrangement of the new network and operating system follows the idea behind the original Windows operating environment.

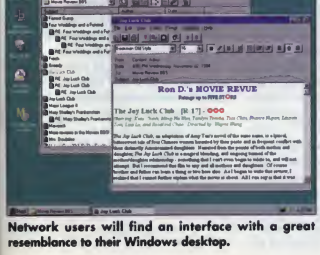
"By staying very true to the way Windows 95 looks, feels, and acts, we think we're going

to offer the user a tremendous amount of use because you don't jump into a different environment," Meng says. "That's different from other applications' approach. What you see is a distinct environment. You have to learn new conventions."

Microsoft also will use "shortcuts" that provide links between features on the service. Meng say these object linking and embedding (OLE) objects will take users to a certain feature when double-clicked. Beginning users should find the links valuable for locating interesting information, Meng says. An experienced member could E-mail a shortcut to a beginner interested in gardening, for example. When clicked, the shortcut may take the new user to a gardening bulletin board. Microsoft hopes the network's seamless integration with Windows 95 and shortcuts will encourage first-time online service users to at least try the newly accessible network world.

"A lot of people are not entirely sure what an online service is or how they might benefit from using one," Meng says. "You may hear about this Information Superhighway. You may want to get involved. But you may not know where to go and how to begin. We want to remove those startup barriers."

Datapro's Theophano says The Microsoft Network is likely to go beyond barrier-busting and take an unfair advantage. Theophano says Windows 95, and thus the network, may achieve nearly 100% market saturation. Many other observers, often Microsoft competitors, have voiced similar concerns that a Microsoft monopoly is in the making.



Network users will find an interface with a great resemblance to their Windows desktop.

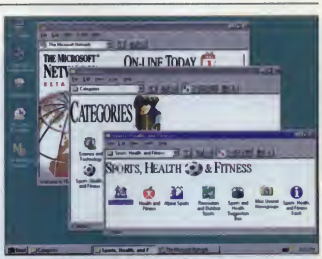
Microsoft is used to such complaints. The company has faced antitrust rumblings for years over its domination of operating systems and applications. Meng says complaints are unjustified in this case. The Microsoft Network will have to compete and survive just like other online services, he says.

"We don't think we have a lock on keeping online service members," Meng says. "If they're not satisfied with our online service, they'll probably go try another one. We will constantly have to earn the business of our customers, and it's not just about distribution."

Even on the distribution front Meng says The Microsoft Network enjoys no great advantage as part of Windows 95. Other online service software is available everywhere you look, he says. Prodigy comes on every computer in the stores, and America Online software shows up in constant promotions, Meng says.

Theophano, however, sees an important difference between The Microsoft Network and other online services bundled with computers. When users log on to their Windows 95 computers, as Theophano understands it, a sign will appear on-screen and ask them for basic information that allows them to join The Microsoft Network. While potential users of Prodigy or America Online must seek out the software and sign on, Theophano says Microsoft's interface is overly aggressive. Bundling with an operating system isn't a problem in her opinion, but actively confronting customers where other services don't represents an unfair advantage.

Theophano says some Department of Justice action regarding the network is likely, but the 300-pound gorilla will continue to work its will.



The right forum can be located quickly through a feature called "shortcuts," which may assist beginning users.

"It's the same thing that always happens with Microsoft," she says. "They're going to get investigated and possibly get their hand smacked and have to pull back in some small way. But it'll end up going through."

Anatomy Of A Service

When the marketing storm and dust from the anti-monopoly scuffles subside, what will users actually see on The Microsoft Network? The project is currently a skeleton of its future self. Meng says Microsoft is using the beta version to test features such as E-mail, chat, and bulletin boards. Little content has gone online yet, because the company currently is concerned with examining how many users the network can support at once. Meng says detailed information on specific content and its providers will be revealed during the next six months.

Announced details on the network's charges are also limited, but Meng will say that his company's business model will differ sharply from that seen on other online services. Most services charge customers by connect time. Content providers receive a percentage of the fee for the connect time users spend in their area. Meng says the content providers usually get between 1% and 20% of the connect-time charge. For example, a subscriber may spend one hour reading a gardening newsletter online. If the service's connect charge is $10 per hour, and content providers receive 20% of time spent in their area, the newsletter provider makes $2.

Meng says Microsoft finds two flaws in this price structure. First, he says, customers don't

Leveraging For The Ledgers

Money, of course, is a major factor in Microsoft's plans for its own network. But Microsoft is worried about more than making it for themselves. The company also wants to help network customers easily spend and track their money online. In pursuit of these goals, Microsoft has allied itself with Visa and moved to purchase Intuit, a leader in personal finance software.

The pending merger with Intuit is especially disconcerting to anti-monopoly activists, most of whom are also employees of Microsoft competitors. Analysts say Microsoft could use *Quicken*, a personal finance package, and *QuickBooks*, a small business accounting program, to facilitate online banking and transactions. The software giant could combine Intuit's golden customer list and easy access to The Microsoft Network and develop electronic invoicing and other products that would be immensely useful to businesses. Future versions of Intuit products could automatically log companies and consumers on to The Microsoft Network for electronic bill paying.

Microsoft unloaded its own personal finance program, *Money*, and accounting package, *Profit*, to Novell and Great Plains Software respectively to prepare for the Intuit acquisition. Some observers say the action wasn't enough and purchase of Intuit still represents a step toward software industry monopoly.

The merger is currently under evaluation by the Securities and Exchange Commission. The review is standard procedure for mergers between two publicly held companies. The Department of Justice, already a familiar foe of Microsoft's, recently issued subpoenas in a widening examination of the merger's anti-competitive implications.

completely understand the idea of being billed for connect time. The value they receive from the gardening newsletter is based on its content, not the amount of time they spend reading it. Second, content providers lose revenue opportunity each time the service lowers its connect charges, Meng says. Those charges are constantly dropping, he says, and that strikes at the providers' bottom line.

The Microsoft Network seeks to correct the problems by keeping connect charges very low. Meng says highly flexible billing options will meet the providers' needs. Magazine publishers, for example, make money in the areas of advertising, subscriptions, and newsstand purchases. Microsoft will allow translation of those areas to an online publication. A publisher may sell subscriptions to individual content areas, require a cover charge for newsstand-type browsers, and assign prices for downloading information. Meng says Microsoft will create interface and billing systems to meet the providers' desired setup. These innovations should equally benefit subscribers looking for options in the content they're willing to use and pay for.

Microsoft has zeroed in on investment and innovation as the keys to a successful online business. Content providers that are forward-looking enough to risk attempts on unusual offerings will make themselves, and Microsoft, winners, Meng says. Past content providers, Meng says, felt they should be online because it was the latest rage. They were unsure, however, how to approach the medium and whether they could make a profit. The result, he says, was timid text offerings that were bland for subscribers and unprofitable experiments for providers.

The new service from Redmond will avoid tentative experiments and seek serious investors willing to use the advantages of online technology. Meng says those providers will attract subscribers. The content Microsoft seeks will go beyond scanned-in articles from a printed magazine. The online information can offer various lengths of a single story depending on what a reader wants. There may be extra photos that didn't make the printed magazine or video and sound clips. Meng says Microsoft will work with providers to put their vision, whatever it may be, online, just as with the flexible billing.

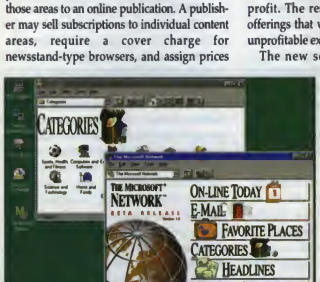
The network's entry should benefit even those subscribers who don't join Microsoft, Meng says. Its announcements to date and innovative ideas have already spurred more customer-oriented benefits in other online services, he says.

Those competitors may have a tough struggle ahead as the market giant lumbers onto their turf, Theophano says. Content providers will naturally be more interested in associating themselves with a vast empire like Microsoft. When a company with so much pull enters a market, providers often "see that as the wave of the future," Theophano says.

Prodigy and America Online, the two services most commonly bundled with computers, will probably lose out to Microsoft in the struggle for the interest of businesses. Theophano notes that Microsoft is the largest business software company (see sidebar titled "Leveraging For The Ledgers"), and that most businesses will load Windows 95 and be tempted by the aforementioned effortless access to the network. CompuServe, a more business-oriented online service, will offer Microsoft more competition for those users, she says.

That factor—competition—provides the exciting questions in the online world. Is it fair? The government may decide that. Who will win it? The market will decide that. Will it benefit customers? Almost certainly. Can anyone keep Microsoft from joining it? The gorilla has already answered that.

by Trevor Meers



Some wonder whether The Microsoft Network's main screen is a bit overbearing.

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You Oughtta Be In Captures

The line is common during conversations, usually on the telephone, between frustrated PC users: "If you could just see this you'd understand!" A thousand words may be wasted in attempts to explain how an Autoexec.bat file or Windows screen should look before a picture makes the issue clear. **Screen captures,** sometimes called screen shots or screen dumps, are the as-is "photos" of computer screens that illustrate manuals, technical guides, and the magazine you're reading. Most users value the shots as a comforting tool that lets them glance from printed page to computer screen and immediately know they're following the author step by step.

Screen captures are indispensable for publishers of computer literature. Teachers and corporate trainers use screen captures to educate students or employees about software. Designers combine screen captures, audio, text, and animation to create multimedia training presentations, and sales demonstrations sometimes include screen captures. Home PC users often find screen captures useful for sharing tips with friends. They'll shoot a screen showing a solution and send the file to a stumped pal via diskette or online service. Maurice Hamoy, vice president of communications at Inset Systems, says users sometimes capture images while they're online for later reference.

Screen capture utilities almost always come as part of graphics manipulation packages. Prices for the packages range from $79 to $200.

Several major features should be considered when comparing packages. Some screen capture utilities offer a countdown before taking the image. This allows action before the screen is saved, such as starting the countdown in the screen capture window and opening a Windows program that occupies the entire screen. Nancy Rosenberg, director of strategic marketing at Inner Media, says some programs allow captures of parts of the screen such as a single window, menu, or icon. Others offer special graphics effects such as shadowing, filtering, and rotating images. Many screen capture utilities, Rosenberg says, allow you to send images to several places, including a file, a printer, or the Windows Clipboard. Users with many graphics files, Hamoy says, should consider packages that let you browse captures by thumbnail image rather than by file name.

Hamoy says to examine the number of file formats the product can read and convert to. Strong utilities assist users in selecting the format that consumes the least hard drive space, he says. Furthermore, all graphics and paint programs do not support the same graphic file formats. A good conversion utility makes transitions from screen capture to graphics editing program to desktop publishing, E-mail, or word processor much smoother. Some graphics packages, Hamoy says, suggest the proper format when users indicate the application to which they will add the capture. File formats are recognizable by the three-letter extensions after the file name. The most versatile screen capture packages support a variety of formats, including the must-have file formats of .BMP, .PCX, and .TIF. Hamoy says .GIF files are useful for telecommunications; the JPEG format allows highly compressed files; and the Macintosh PICT format is handy in a Mac/PC environment.

Finally, consider whether a DOS, Windows, or combination package best suits your needs. DOS screen capture utilities, which are rarely found alone, usually aren't as easy to use or as versatile as Windows utilities. See the end of this article for a list of some major screen capture packages. You also may find low-cost or free screen capture utilities on online services.

The Windows Way

Though dedicated screen capture utilities offer advantages in use and features, Windows users can create screen captures without purchasing extra software. If you've always wondered why that PRINT SCREEN key is on the upper edge of the keyboard, your curiosity is about to be satisfied. Screen images can be easily captured with the PRINT SCREEN key, sometimes labeled PRT SCR or PRINT SCRN, and the Windows Clipboard. Though it's far from the most versatile method of screen capture and is prone to occasional quirks, the Windows way has three overriding benefits: it's cheap, simple, and cheap.

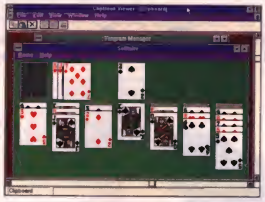
Two built-in Windows applications, Clipboard and Paintbrush, make screen captures and their editing possible. ClipBook Viewer is located in the Main group in Windows' Program Manager, and Paintbrush is in the Accessories group. Clipboard is a type of information bridge that lets users transfer information among documents or applications with cut-and-paste operations. The process typically involves selecting information by highlighting it with the mouse, sending the selection to the Clipboard with a CUT command, and moving the selection to the new document with a PASTE command. ClipBook Viewer is the window to Clipboard's contents; there users may save, retrieve, or delete

information in Clipboard. Paintbrush provides tools for creating and editing drawings, graphics, and other images. The toolbox features buttons for adding and changing lines, colors, text, and shapes in images.

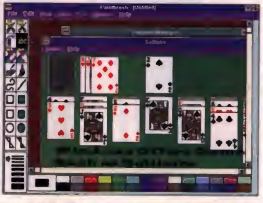
Shooting your Windows screen is as simple as pressing the PRINT SCREEN key. The key sends an image of your Windows screen to the Clipboard, not the printer. Some older keyboards may require you to hold down the SHIFT key while pressing PRINT SCREEN. You also may need to press PRINT SCREEN twice to capture the screen. Hold down the ALT key while pressing PRINT SCREEN to capture only the active window with nothing surrounding it. The active window always has the highlighted title bar. Don't waste time searching for the mouse arrow in the screen capture because PRINT SCREEN leaves it out.

Open ClipBook Viewer and maximize it to see your new screen capture. Curious users may like to experiment by leaving Clipboard Viewer open while pressing PRINT SCREEN. You'll see the image change immediately after pressing the key, but this trick causes the ClipBook Viewer window to appear in the screen capture.

Open Paintbrush to begin editing the screen capture. Maximize the Paintbrush screen so there's more room to work with your image. From the View menu, choose Zoom Out so that you can see the entire screen capture at one time. It's now time to bring in the image. Choose Paste from the Edit menu, and you'll see a grid on the Paintbrush window. This shows how the screen capture will fit on-screen. Choose Paste a second time to bring up the image itself. (If you look in ClipBook Viewer again, you'll notice that your screen capture is still there.



Windows screen captures, such as this shot of Solitaire, can be seen in ClipBook Viewer.



Text and other graphic elements may be added to captures with Paintbrush.

Don't leave graphics in Clipboard any longer than necessary since they occupy memory that could be better used by other programs. To empty Clipboard, open its window and press DELETE.) If you wish to see the full-screen image without the grid and Paintbrush window, go to the View menu and choose View Picture. When you're finished savoring your shot, click the window to return to Paintbrush.

Editing is clearly easier without the grid covering the image, so remove it by choosing Zoom In from the View menu. The screen capture will appear clearer and larger. Use the horizontal and vertical scroll bars to reach areas of the image that exceed the window's borders. Now you can use any of Paintbrush's tools to change the capture's look. The Help menu contains detailed instructions on the various tools.

When you've finished editing, choose Save As under the File menu to save your screen capture. (If the File menu is shaded and won't operate, select Zoom In.) The Save As dialog box appears and offers several options. You may save the capture as either a .PCX or .BMP file. **Bit-mapped Images**, using the .BMP extension, are stored as a series of bits (1s and 0s) in memory. Bit map file options include monochrome bit map, 16-color bit map, 24-color, and 256-color. The .PCX format is a widely used graphics format. Paintbrush automatically saves images as bitmaps unless you specify .PCX. Format choices are available in the Save File as Type list in the lower left of the dialog box.

You may save the screen capture to any of the drives on your PC by selecting a drive letter from the Drives: pull-down list in the dialog box's lower-right corner. The diskette drives are usually represented by A: and B:, while C: indicates the hard drive. If you intended to save the capture to a diskette, but forgot to change the destination drive from C: in the dialog box, don't worry. In the Main program group open File Manager. Locate your capture file in the Windows directory of the C: drive, click and hold the mouse button with cursor on the file name, and drag it onto the A: icon near the top of the window. A dialog box will ask you to confirm the copy procedure.

You've now taken what was once a fleeting image on your monitor and stored it as data on the hard drive or diskette. This Windows Clipboard method won't make you a graphics guru, but it does put screen capture capability in the hands of almost all PC users. We think you get the picture. ●

by Trevor Meers

For More Information:

Clip'n Save 2.0 (DOS/Windows captures, file conversions)
$69 (street)
Dynalink Technologies
(514) 489-3007
Mail Order through Programmer's Shop
(800) 421-8006

Collage Complete (DOS/Windows captures, image management and editing)
Inner Media
$139 to $149 (street)
(800) 962-2949
(603) 465-3216

HiJaak Graphics Suite 3.0
(DOS/Windows captures, file conversions, image management and editing)
Inset Systems
$100 (street)
(800) 374-6738
(203) 740-2400

Pizazz Plus 4.0 (DOS/Windows captures, image editing)
$149 (street)
Applications Techniques
(800) 433-5201
(508) 433-5201

Need some help with your hardware or software?
Looking for simple explanations on technical subjects?
Send us your questions!

Multimedia

Q: My CD-ROM seems sort of slow, particularly when I view moving multimedia pictures. I've heard it's possible to set aside one megabyte (MB) of memory for a cache for my CD-ROM and that would speed it up. I recently raised my total random-access memory (RAM) from 4MB to 8MB. How do I allocate some RAM for the cache?

A: A disk cache provides temporary storage in RAM for material read from a hard disk (or CD-ROM). As a result, that information (video clip, etc.) is accessed much faster than if the computer mechanically reads the disk. Almost every computer should, and does, have an active disk cache. There are, however, two catches: The first time something is read, it has to be read from disk anyhow; and the cache has to be large enough to hold the whole thing (document, graphic, etc.) that the computer needs. The cache program provided with DOS and Windows is SmartDrive. It probably was installed when you installed DOS or Windows. To check, type **smartdrv/s** at the DOS prompt and press ENTER. This will tell you if it's running, what version it is, and what drives it's caching already. Only SmartDrive version 5.0 or newer, which was packaged with DOS 6.21 or Windows 3.11, will work for a CD-ROM. If your SmartDrive is new enough, you can put this line in your Autoexec.bat file (we assume your C: drive is your hard drive and D: is your CD-ROM drive):

```
lh c:\windows\smartdrv.exe c d a- b- 2000 1000
```

If your SmartDrive that came with DOS is newer than the one with Windows, then you'd use C:\DOS\ instead of C:\WINDOWS\ .

(LH [LOADHIGH] tells DOS to load SmartDrive in high memory. C:\WINDOWS tells DOS to use the SmartDrive found in your Windows directory. The "c d a- b-" means "cache the C: drive, cache the CD-ROM (D: drive), and don't cache floppy diskettes (A: and B: drive)." The string "2000 1000" directs your system to give the cache 2MB when Windows isn't running, but only 1MB when it is. (Also see our answer to the next question [below]).

If you have Windows for Workgroups 3.11, you can access an optional feature called 32-bit-file-access (32BFA) that does what SmartDrive does, only much faster. Turn 32BFA on, but contrary to directions (if you want to leave a healthy cache for your CD-ROM) you'd still want SmartDrive set up as above. (The 32BFA trick works only on the hard disk, not your CD-ROM.)

Utilities

Q: I have a 25 megahertz (MHz) 386SX. After installing DOS 6.22's compression utility (Drivespace), I find myself waiting what seems like minutes for my spell checker in *Microsoft Works* to search and display alternate spellings when it finds a misspelled word. Is there anything (short of buying a bigger disk and removing Drivespace) to boost the speed back up?

A: Unfortunately, the process of compressing and decompressing eats up your computer's brainpower, so on a slow computer (anything less than a 33MHz 386DX) it does slow down reading and writing to the disk (both of which happen during a spell check). You may have to decide whether disk space or speed is more important to you. But there are several things that might speed it up a lot or a little.

1) Make sure you have SmartDrive—the disk-cache utility—running, and give it a reasonable share of RAM (see our answer to the previous question). "Reasonable" depends on how much RAM you have. Type **smartdrv/s** at the DOS prompt to find out if it's running and how much RAM is allocated. If you have 4MB, give about 500 kilobytes (KB) to SmartDrive; if you have more, give up to 1500KB to SmartDrive.

1b) Try turning on "delayed writes" in SmartDrive. You can do both with a line like this in your Autoexec.bat file:

```
device=c:\dos\smartdrv.exe  c+ 500
```

The "500" is how much RAM SmartDrive gets. The "+" is the magic trick that turns on delayed writes. (To learn more about SmartDrive, type **help smartdrv** at the DOS prompt.) Delayed writes means that when your computer writes something to your disk, that information doesn't go directly to the disk. Instead it goes into the 500KB of RAM you allocated for the SmartDrive disk cache. When enough stuff intended for the disk has accumulated in the cache, or a long time (say, a few seconds) has passed, SmartDrive finally puts it all on the disk in a quicker manner. (This is kind of like waiting until everybody in the family has finished their shopping lists before driving to the store, rather than making a separate run for each family member whenever they happen to feel hungry.) Sometimes speed gains from delayed writes are dramatic, sometimes as much as 500%. But there's a dark

side: If something weird (i.e., a momentary power failure, you pushing the Reset button, etc.) happens during the time your stuff is waiting in the disk cache memory, confusion results. There's a mismatch between what's supposed to be on the disk and what really arrived; that mismatch can mess up your disk's filing system so badly that everything on it is lost. While such catastrophes are very rare, we recommend delayed writes only if you have nothing important on your hard disk; keep complete, current backups; or love skydiving, bungee-jumping, and playing the horses with your rent money.

2) If you have 4MB of RAM or less, buy more. Allocate some more RAM to SmartDrive (see above). SmartDrive aside, most things in Windows run faster with more RAM. The greatest speed gains come from boosting RAM to 8MB.

3) Defragment your hard disk, but don't use the DEFRAG command that comes with DOS. It's fine, but doesn't truly defragment compressed drives. Try *Norton Speedisk* or another defrag utility that says it can handle compressed disks made with DriveSpace.

4) Perform a little house cleaning to remove unused programs and use the saved space to remove compression. (See "Cleaning Dirty Windows" in the July 1994 issue of *PC Novice* for more information.)

There's a hidden region of your disk, called the "host drive," still left uncompressed. It's usually called H: as if it was a separate disk; the next suggestions may require you to make more space on it. You can make extra room there by using the DRVSPACE/SIZE command (type **help drvspace/size** for more information).

5. Move the Spell Checker's files and program to a subdirectory on your uncompressed host drive. (Call Microsoft technical support for details.)

5b. Works makes temporary files. Make sure you have a permanent swapfile setup in Control Panel (under the 386-Enhanced icon, select Virtual Memory). And try sending it to the H: "drive."

5c. Try changing the TEMP statement in your Autoexec.bat files to send temporary files to the host uncompressed drive region. Change the line in your Autoexec.bat to read: set temp=h:\temp. Get to DOS, then type **h**: <ENTER>; **md temp** <ENTER>; and **c**: <ENTER>.

Q: In your January 1995 issue you say that DOS 6.2's BACKUP command will copy "important files" stored on a hard disk to a diskette. I lost many of my original disks and wanted to use BACKUP to make copies of my programs onto floppy diskettes. However, BACKUP will not back up individual files. Why can't I make individual file diskette copies from my hard disk? Is there something I'm missing?

A: Yes, and it's not just your factory disks. Frankly, even if you succeed in copying your program files as individual files onto floppy diskettes, don't be surprised if the disks won't do what you want when you try to reinstall a program. Most programs have complex installation routines that they need for a successful reinstallation; copying them back (or to an other computer) file by file usually won't cut it. This is especially true for Windows programs. File-by-file copies are not a good substitute for original disks or for a true backup with a backup utility.

MSBACKUP, or the MWBACKUP in the Windows Microsoft Tools group (not to be confused with the old, obsolete BACKUP utility), is set up to copy everything on your hard disk in one large, multifloppy stack. You can set up MSBACKUP to tag individual files and directories for a selective backup, but even then you won't see individual file names on your backup disks. Whether you've done a total backup or just a few files, if you need to put them back (restore) into the computer you can at that time tell MSBACKUP to select only certain files or directories. Read up on MSBACKUP in its own help screens (press the F1 key while MSBACKUP is running) and the DOS manual.

If you truly need to copy groups of individual files so that they're visible and directly readable on disks, you can use the COPY or XCOPY commands. (Type **help xcopy** at the DOS prompt.) But XCOPY is much slower than MSBACKUP, takes twice as much floppy space, and is less reliable because there's no built-in error correction. Old Xcopied disks also are more likely to be defective when you need to read them in an emergency.

Computer Hardware

Q: I have fallen heir to an APPLE III. So far, I haven't found any information about it. Any ideas as to where I might ask for information, if any is available on this ancient computer?

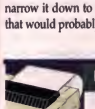
A: The III was an early '80s computer. You also can do quite a bit with it. Bob Consorti produced a magazine (ON THREE Inc., 179 Kent St. Unit B, Brookline, MA 02146) covering the Apple III and they still have information and material for the III. Also, if you have access to a CompuServe account, type **go appuser** and look in section 13 (Apple III). It's populated by Apple III users, one of whom may even be able to tell you how to get the III to pretend it's a IIe, which would increase your available software.

Apple III came from the Apple II lineage after the Apple II Plus. The machine was ahead of its time, supporting up to 4MB of RAM, two built-in serial ports, color and black-and-white video ports, graphics better than the popular Apple IIe, and more. The III was the first casualty in Steve Job's plan to drop all Apples in favor of the Macintosh. When the III was killed off, it was Apple's best-selling and most profitable business computer. One industry insider claimed that "had Apple pushed it at the time, PC compatibles wouldn't be the predominate business machine these days." In any case, they seem to last and are still being used.

Q: My son has a 286E Compaq. Our problem is that the color monitor will come online sometimes without color. Other times it starts with color and later turns to black and white.

Computer Hardware

A: Sounds like a hardware problem to us. Either your monitor, your video card, or the cable and connections are getting old and flaky. First, try carefully removing and snugly reseating both ends of the cable between the screen and the computer. Try another cable. If that doesn't help, try opening the case and reseating the video card (the one connected to the screen). If that doesn't work, try borrowing someone else's video card. (You didn't tell us if your monitor is a VGA, old EGA, or an ancient RGB type, but you need to use a card type matching your monitor type.) If the card turns out to be the culprit, relax. New, cheap video cards can be found for as little as $30 (it wouldn't make sense to put a $200 modern card in that old computer and monitor anyway). If you narrow it down to the monitor, you're out of luck. An old monitor like that would probably cost more to fix than it's worth.



Printers

Q: I have an HP 386 computer and an Okidata 380 printer used with Microsoft *Word for Windows* 2.0. My printer uses continuous-feed, fanfold paper. I set the page margins for the first page at one inch for the top and bottom. My first page prints perfectly. However, starting with the second page and subsequent pages of one document, the printer prints over the sheet separation/perforation. What can I do?

A: This sounds like a printer driver issue. Specifically, it could be incorrect settings in your printer driver setup. In Word, click on File, then Printer Setup. When the Select Printer dialog box opens, press the Setup button and check that the correct paper size is selected. While in that printer setup screen, press the About button and write down the printer driver version numbers that are listed. Then call Microsoft or Okidata and ask them if you need a different or newer printer driver.

Q: I had to turn off Print Manager in my Windows for Workgroups (WFW) 3.11 because of an incompatibility between it and my Hewlett-Packard 4L printer. Now every time I start Windows, I'm harassed by a "warning" that says Print Manager is not running. How do I get rid of the warning?

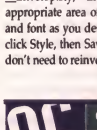
A: We're not sure why you couldn't get Print Manager to work with your Hewlett-Packard because we've seen HP 4Ls running just fine with it. Anyhow, to turn the warning off, try starting with **win /n** instead of just **win**. This tells WFW to start up with "no network capability activated." It's possible that WFW is complaining about the lack of Print Manager because it thinks some other users on your nonexistent network may need to access it. Even if you have a real network, starting WFW with **win /n** any time you don't want others to access your computer is a good idea. You also can try temporarily turning on Print Manager and open it by clicking on its icon. Click on Printer, then on Disconnect Network Printer, and use the dialog box to disable any shared printer you find there.

Word Processing

Q: One reason I got my *AmiPro* word processor is its ability to print envelopes of virtually any size. But I found that no matter what I do, I can't use a font I apply to the address in my document in the envelope. AmiPro reverts to Times New Roman 12.

A: AmiPro has two different ways to print envelopes. The easiest, which you're using, involves clicking on the SmartIcon for envelope printing. Your key is understanding AmiPro's powerful style sheets (use Help or your manual to study up on them). That envelope SmartIcon works with a style sheet named "~amienv.sty" or "_amienv.sty" (note the "~" and the "_"). Modify it like any AmiPro style sheet by choosing File, then New. Select ~amienv.sty (if your AmiPro is set for long style sheet names, look for "ENVELOPE—Used for automatic"), and click OK. AmiPro then displays an envelope called Untitled. Choose Style, then Modify Style. Select Return and then Recipient from the Styles pull-down list. Set your desired font. You can even import a graphic for your envelopes. Click Save, then OK. Click Style, then Save-as-a-Style-Sheet. Press OK. *Don't change the filename*. When asked if "OK to overwrite," press Y and don't bother saving the untitled document. This semi-permanently custom sets your fonts for all envelopes printed with the SmartIcon. With this change, there's still no on-the-fly way to have the SmartIcon print the return address in anything other than the font that you just selected for Return paragraph style on a one-time single envelope. But you can alter a recipient's address font: highlight the recipient's address in your letter, select the font you want on the envelope, and press the SmartIcon. Once the envelope prints and your letter is back on-screen, you can type CTRL-N if you want to remove the font from the still-highlighted address.

If you want absolute font control (at the cost of convenience) each time you print an envelope, don't use the SmartIcon. Instead, highlight and copy the recipient's address from your letter. Choose File, then New, and select one of AmiPro's other envelope style sheets (such as _Envelop.sty, ~Env.sty, ~Envhp3.sty, etc.) Paste the address into the appropriate area of the on-screen envelope. Customize its appearance and font as you desire; it will print as shown on-screen. Don't forget to click Style, then Save-as-a-Style-Sheet once you're happy with it so you don't need to reinvent it next time.



Operating Systems

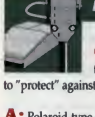
Q: I somehow deleted the icon I use to bring up my *Microsoft Money* program. Now I have to start it using File Manager. How can I put the Money icon back in the Microsoft Solutions Series icon group in my Program Manager?

A: It's easy to accidentally delete an icon; merely touching your DELETE key while the icon us highlighted can do it. It's also easy to rebuild it, particularly if you know (or can guess) the name of your program's main file and the directory where it's located. In this case, your

Operating Systems

default installation directory is C:\MSMONEY, and your main program file is Msmoney.exe. Now go to Program Manager, open the group you want the icon in, click on File, then New. Make sure Program Item (not Program Group) is selected. Then press OK. The Program Item Properties dialog box opens. For the Command Line, type **c:\msmoney\msmoney.exe** and type in anything you want (e.g., **msmoney**) for your Description entry.

If you don't know the program's main file, or its directory (for example, if it was installed in an untypical location), you usually can use Setup to rebuild the icon. In Program Manager, open the Main group. Double-click the Windows Setup icon. Click on Options, then Setup Applications. When Setup offers to search for applications, press OK. After the search, it will show you a list of applications found. That list will include programs you already have icons for along with (probably) the one with the lost icon, and a few programs you didn't know you had. (In fact, this is a good way to discover if there are Windows programs and utilities on your disk that don't have icons.) Highlight the name of the "lost" program, then press Add to add it to the list of programs you set up. Then press OK. The icon will appear in your Applications group. You'll be able to drag and drop it into whichever group you want. The Msmoney3.txt file in your C:\MSMONEY directory also has more information on files set up by Money.



Miscellaneous Hardware

Q: What is the effectiveness and need for one of those Polaroid or other screen guards over a monitor to "protect" against radiation?

A: Polaroid-type screens are good for reducing on-screen glare and reflections and for making the blacks blacker, but they normally make no claims about radiation. There's been much research and even more speculation about radiation from computers and monitors. It's all rather muddy, though. Hair dryers, waterbed heaters, and other appliances actually give off stronger radiation than computers do—to some that implies it's not worth worrying about a little computer radiation. Yet few of us use our hair dryers as many hours per day as our computers, and though many of us have to work at computers to keep our jobs, few jobs would ever demand that you sleep in a waterbed. In 1985, the World Health Organization declared that available data didn't support claimed links between CRT use and birth defects. *Consumer Reports* (May 1994) leaves matters open, saying that "computers have come under suspicion" for radiation. The Swedish government has standards (MPR-II) that certify that a monitor's radiations are below certain levels. Many US-sold monitors meet MPR-II standards. Since no one knows how low is low enough, that leaves us puzzled.

Most experts suggest sitting at least 17 inches from your monitor and never sitting behind it (where there's stronger radiation). Some folks say "you can't worry about every possible unproven hazard," others say "better safe than sorry," and buy devices to reduce radiation. Even a glare screen with a simple ground will reduce static electricity. There is no front-mounted screen that will block all monitor radiation. NoRad (800/262-3260 or 310/605-0808), the oldest PC radiation shield maker in business, makes ELF-ProTech (approximately $100), which fits around the monitor case and reduces ELF magnetic fields greatly (ELF radiation is particularly suspect). They also make front-mounted screens claimed to reduce other types of radiation by 60%. Two books that tell you more about how to protect yourself from radiation, and many other computer hazards, are "Ergonomic Living" (Inkeles & Schencke) and "ZAP" (Sellers). ●

Updates

In the March 1995 Q&A column, we mentioned that owners of Microsoft Windows programs often have a utility program called MSINFO. A few readers have reported trouble finding it. To re-emphasize the March column, **not everybody will have this program.**

To make sure that you actually have Msinfo.exe on your system, follow these steps:

1. Go into Windows' Main program group and click on File Manager.
2. In File Manager, click on File, then click on Search.
3. When the Search dialog box opens, you'll see one box called "Search for" and another called "Start From".
4. In the "Search For" box, type **msinfo.exe**
5. In the "Start From" box, type **c:**
6. Make sure there's an *X* in the "Search all subdirectories" box.
7. Click on OK. The "Search Results" box will show you where your Msinfo.exe file is. It is generally found in your C:\WINDOWS\MSAPPS\MSINFO directory.
8. Make a note of where it's found. If the search says, "No matching files were found," then you **DON'T** have MSINFO.

If you **DO** have it, you can start it in two ways:

1. Open Program Manager's File menu, select Run, and type in the MSINFO location you found in your search (i.e., type **c:\windows\msapps\msinfo\msinfo.exe**).

2. You can make an MSINFO icon in your Program Manager just as you would with your other programs. To do this:

a) Open Program Manager and then the program group in which you want to place your new icon. (We suggest your Accessories group.)

b) Click on File, then New.

c) In the New Program Object dialog box, make sure "Program Item" has a black dot next to it, then click OK.

d) You will then see the Program Item Properties dialog box. In the "Description" box, type a description (i.e., **msinfo utility**).

e) In the "Command Line" box, type the entire path you discovered in your search (i.e., **c:\windows\msapps\msinfo\msinfo.exe**), then click OK. You should now have a permanent MSINFO icon in your Accessories group.

Get straight answers to your technical questions. Ask PC Novice! Send your questions to: PC Novice Q&A, P.O. Box 85380, Lincoln, NE 68501. (Volume prohibits individual replies.)

GLOSSARY
Of Terms

Binary—A number system based on 2. In binary, only two numbers, 0 and 1, represent all possible mathematical values. Computers use the binary number system because it best represents what a computer understands—on and off.

Bit Map—A technique used by graphics programs to create an image. Bit-mapped programs create images using a pattern of dots.

Bus—The copper tracings on the surface of the motherboard that transmit data between computer components.

CPU—Central Processing Unit. The "brain" of the computer. The type of CPU, or microprocessor, that a computer has determines what type of system it is. The 80386, 80486, and the Pentium are all processor chips, or CPUs.

Conventional Memory—The first 640KB of the first megabyte of a system's memory, which DOS uses to run programs.

DDC—Display Data Channel. Standard established for computer monitors by the Video Electronic Standard Association (VESA). There are two types of DDC. DDC1 is for one-way communication between a monitor and the computer's microprocessor. DDC2 is for two-way communication, meaning that your system can "talk" back to peripheral devices.

Device Driver—Software that acts as an interpreter between your hardware and software.

Dot pitch—Measure of pixel spacing expressed in millimeters.

ESDI—Enhanced Small Devices Interface. A hard disk interface that provides a link between the disk drive and the system bus.

Expanded Memory—Memory outside the DOS 1MB limit that is accessed in revolving blocks.

Expansion Cards—Circuit boards that fit into slots on the main circuit board and are used to add additional capabilities to your computer.

Floating-Point Notation—Also called exponential notation, is a format used to represent extremely large and extremely small numbers. The computer eliminates extra zeroes while the calculation occurs, speeding up the processing.

Heat Sink—A device, usually made of metal, that absorbs and dissipates heat generated by an electrical component.

Horizontal Scan Rate—The speed at which one line is drawn across the width of the screen (usually expressed in kilohertz [kHz]). The greater the vertical frequency, the greater the horizontal scan rate has to be.

IDE—Integrated Device Electronics. A type of disk drive interface that eliminates the need for separate adapter cards.

Interlacing—A technique that draws a screen image in two very fast passes. The first pass draws every other line, and the second fills in the gap. Interlacing causes the flicker that many people notice in their monitors, which also leads to eye strain.

IRQ—Interrupt Request Line. Hardware lines that allow peripheral devices, such as mice and modems, to communicate with your computer's microprocessor. Each IRQ line has a specific address in the computer's memory.

Math Coprocessor—Teams with a microprocessor to speed its performance with mathematical calculations and performs calculations using floating-point notations.

MFM—Modified Frequency Modulation. A widely used method of storing data on disks. The technique bases the magnetic coding of each bit on the status of the previously recorded bit. While it is capable of saving some space in memory, it is not nearly as efficient as run-length limited (RLL) encoding.

Motherboard—The main circuit board of the computer to which all other components are connected or directly attached. The motherboard fits into the bottom of the computer's case.

Parameter—A value or option you can add to customize a command to perform a specific task. If you don't specify parameters, most programs use a default (a value predefined in the software).

PCI—Peripheral Component Interconnect. A standard design, developed by Intel Corp., for computer motherboards and expansion slots that can transfer 32 or 64 bits of data at a time. Its expansion slots are compatible with either industry standard architecture (ISA) or special PCI expansion cards.

Refresh rate—The number of times per second a monitor redraws its screen image.

Resolution—A measurement, usually in dots per inch, of the sharpness of an image generated by a monitor or a printer. Higher resolutions yield clearer images; lower resolutions make images appear coarse and out of focus.

RLL—Run Length Limited. A fast and efficient method of storing data on a disk in which patterns in the bits representing information are translated into codes rather than being stored literally bit by bit and character by character. As a result, it provides for storage capacity higher than that of older encoding methods, such as MFM.

SCSI—Small Computer System Interface. A parallel interface format that permits the linking of up to seven computer peripherals to one port on a PC.

Wildcard—One character, such as an asterisk or a question mark, that is used in commands as a substitute for another character or string of characters.

800 Reader Service

To request additional information on the following products and services advertised in *PC Novice*, call the number provided by the advertiser. When calling the manufacturer, please mention *PC Novice*.

Company Name	PhoneNumber	Page #
ACCO USA Inc. The Right Accessories Make An Outfit Work	800-ACCO-INC (800-222-6462)	IBC
Computer City In Today's World It's Sink Or Swim	800-THE-CITY	55
Corel CD Creator	800-279-4239	BC
Dataviz Conversions Plus	800-254-1116	1
Genius Easy Painter	800-456-7593	17
ICS Home Schooling	800-595-5505 Ext. 7193	23
My Software My Brochures, Mailers & More For Windows	800-325-3508	7
Peachtree An Easier Way To Do Your Accounting	800-428-9980	IFC
Parsons Technology Free "Greetings" Software	800-710-1222	15
Sears	See Advertisement	41
Sirius 3 Foot—6 pak	800-616-6676	75
SRW Components The Next Generation In Computer Accessories	800-547-7766	27
TouchSoft Pocket Finance	800-900-0968 Ext. 430	53

Letters To The Editor

Dear *PC Novice*:

I wanted to let you know how much I have enjoyed your magazine. A year ago, we bought our first home computer and I am glad we waited as we have CD-ROM, multimedia, etc. Your magazine has helped me become much more computer literate, and I recommend it to my friends who are buying new home computers. I look forward another year of learning how to get the most out of my PC with the help of your excellent magazine. Keep up the great work!

Karen M. Shorter/Hudson, OH

Dear *PC Novice*:

I am rather new to the realm of computers so I subscribed to several magazines in hopes of learning the basics as quickly as possible. *PC Novice* was one of my first choices. I found it to be so well-written and easily understood that it is now the only one I get. Some of my computer literate friends have even subscribed to it as well. Please keep up the good work!

John A. Hammond/Sparrowbush, NY

CORRECTIONS/CLARIFICATIONS

In the "Changing Your Computer's Battery" article in the March 1995 issue of *PC Novice*, we incorrectly quoted a phone number that readers could call for a free Ray-o-Vac brochure about changing your PC's battery. The correct number is (800) 881-CLOC.

In the Novice Note entitled "Computerizing Your Baby Book" on page 13 in the March 1995 issue, we dropped a digit from the toll-free customer service number for 4Home Productions. Readers should call (800) 773-5445.

In the article "Parting With Your Old Computer," which appeared in the March 1995 issue, we published a number for the International Computer Users Fellowship of Rotary International that interested parties could call about donations of computer equipment. Since the March issue was published, the volunteer organization has told us that the number has changed. Questions and offers of donations should now be directed to Mike Kan at (203) 797-9289 (voice and fax).

ATTENTION READERS!

Do you have a data disaster story to share? If the answer is a loud and resounding "yes!", send us a brief letter describing your experience (please include a daytime phone number). Our writers will contact those readers with the best anecdotes and feature them in an upcoming article.

Send letters to: Reader Data Disasters, *PC Novice*, P.O. Box 85380, Lincoln, NE 68501-5380.

Letters to the Editor should be sent to: *PC Novice* / P.O. Box 85380 Lincoln, NE 68501-5380. Letters may be edited for clarity or space.

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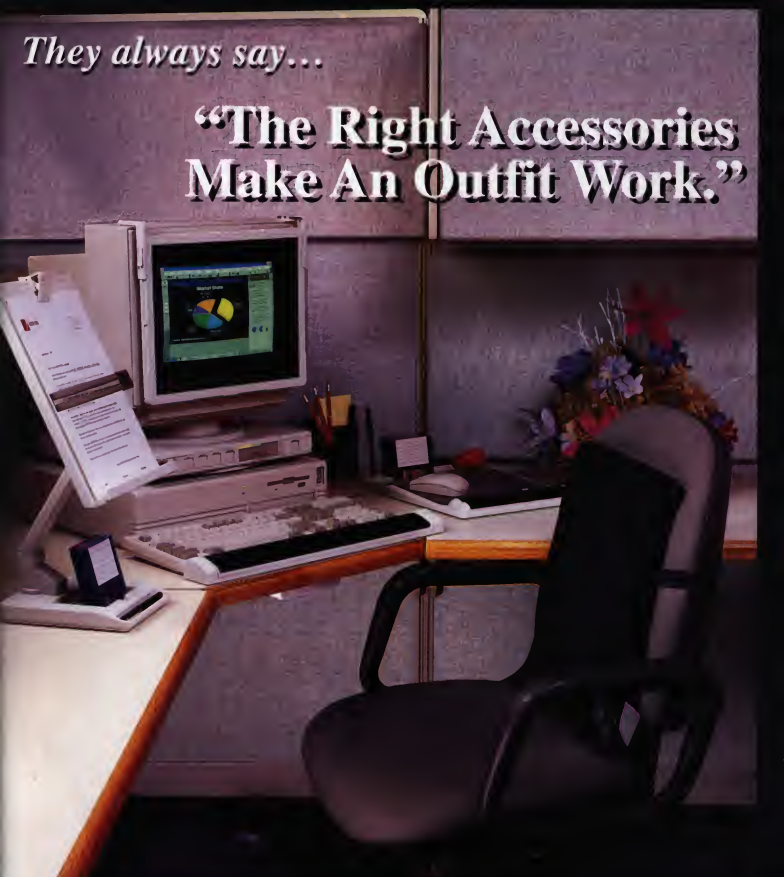

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